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ABSTRACT

In October 1992, the Water and Sanitation for Health (WASH) Project held a workshop to explore how the U.S. Agency for International Development (USAID) could incorporate community participation as a core element in projects to improve water supply, sanitation, and other environmental conditions of peri-urban areas in developing countries. The results of the workshop and subsequent work are described in this report, which proposes a model for facilitating community involvement in management of environmental pollution (CIMEP). A CIMEP program empowers residents of peri-urban communities to investigate environmental conditions in their neighborhood, identify problems, set priorities, and plan and implement measures to address the problems that most concern them. With the CIMEP model, two processes develop in parallel: (1) the technical process of identifying and evaluating environmental health problems and developing interventions to mitigate their effects; and (2) the participation process involving a systematic program of training and communication to provide community members, local nongovernmental organizations, and local government officials with skills, information, methods, and practices they need to work together to plan and implement an environmental management program. The report is arranged into sections as follows: CIMEP defined, the CIMEP model, technical methods for assessment and planning, community participation activities in CIMEP, and towards implementing the CIMEP model. Contains 89 references. (PVD)

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Public Participation In Urban Environmental Management

A Model for Promoting Community-Based Environmental Management In Peri-Urban Areas

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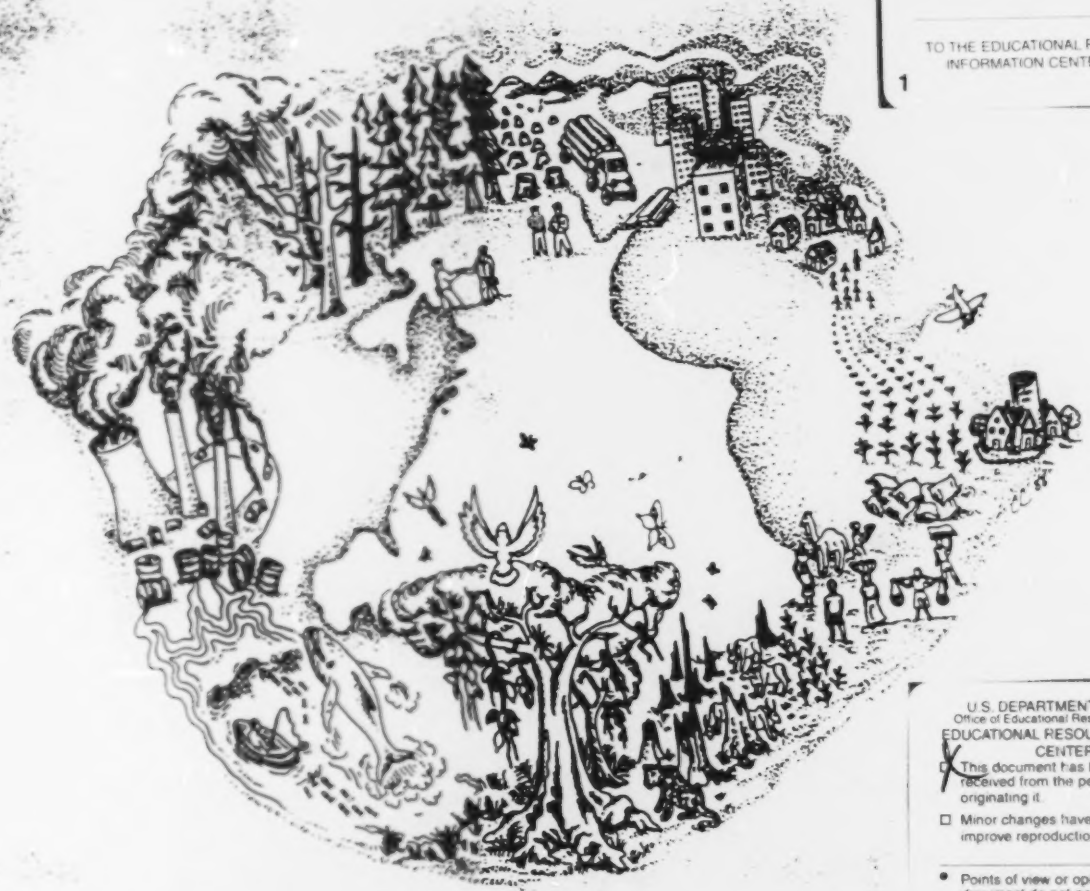

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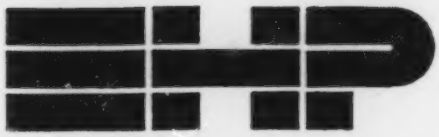

ENVIRONMENTAL HEALTH PROJECT

WASH Technical Report No. 90

PUBLIC PARTICIPATION IN URBAN ENVIRONMENTAL MANAGEMENT:

A MODEL FOR PROMOTING COMMUNITY-BASED ENVIRONMENTAL MANAGEMENT IN PERI-URBAN AREAS

Prepared for the Bureau for Global Programs,
Field Support, and Research
Office of Health, Population, and Nutrition
U.S. Agency for International Development
under WASH Task No. 368

by

May Yacoob
Eugene Brantly
and
Linda Whiteford

March 1994
Revised May 1995

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WASH and EHP

With the launching of the United Nations International Drinking Water Supply and Sanitation Decade in 1979, the United States Agency for International Development (USAID) decided to augment and streamline its technical assistance capability in water and sanitation and, in 1980, funded the Water and Sanitation for Health Project (WASH). The funding mechanism was a multiyear, multimillion-dollar contract, secured through competitive bidding. The first WASH contract was awarded to a consortium of organizations headed by Camp Dresser & McKee International Inc. (CDM), an international consulting firm specializing in environmental engineering services. Through two other bid proceedings, CDM continued as the prime contractor through 1994.

Working under the direction of USAID's Bureau for Global Programs, Field Support and Research, Office of Health and Nutrition, the WASH Project provided technical assistance to USAID missions and bureaus, other U.S. agencies (such as the Peace Corps), host governments, and nongovernmental organizations. WASH technical assistance was multidisciplinary, drawing on experts in environmental health, training, finance, epidemiology, anthropology, institutional development, engineering, community organization, environmental management, pollution control, and other specialties.

At the end of December 1994, the WASH Project closed its doors. Work formerly carried out by WASH is now subsumed within the broader Environmental Health Project (EHP), inaugurated in April 1994. The new project provides technical assistance to address a wide range of health problems brought about by environmental pollution and the negative effects of development. These are not restricted to the water-and-sanitation-related diseases of concern to WASH but include tropical diseases, respiratory diseases caused and aggravated by ambient and indoor air pollution, and a range of worsening health problems attributable to industrial and chemical wastes and pesticide residues.

WASH reports and publications continue to be available through the Environmental Health Project. Direct all requests to the Environmental Health Project, 1611 North Kent Street, Suite 300, Arlington, Virginia 22209-2111, U.S.A. Telephone (703) 247-8730. Facsimile (703) 243-9004. Internet EHP@ACCESS.DIGEX.COM.

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Politics, broadly defined, is the means by which we make collective decisions and choices. We now confront a set of choices as difficult as any in human history. The art of politics must be brought to bear in defining these choices, raising public awareness of the imminent danger facing us, and catalyzing decisions in favor of a collective course of action that has a reasonable chance of success.

—Al Gore from Earth in the Balance: Ecology and the Human Spirit, 1992

Making choices between economic and social benefits and environmental costs often requires subjective judgments and detailed local knowledge. Neither governments nor aid agencies are equipped to make judgments about how local people value their environment. A participatory process is essential. . . . Experience suggests that success is greatest when tasks are devolved selectively and on the basis of actual performance. Increasing responsibilities for local governments is an important part of this process. Public agencies need training in participatory approaches and a clear indication from senior management of the importance of participation.

—The World Bank from World Development Report 1992: Development and the Environment.

The essence of good risk communication is very simple: learn what people already believe, tailor the communication to this knowledge and to the decisions people face and then subject the resulting message to careful empirical evaluation. . . . Indeed, when people are given balanced information and enough time to reflect on it, they can do a remarkably good job of deciding what problems are important and systematically addressing decisions about risks.

—M. Granger Morgan from "Risk Analysis and Management," Scientific American, July 1993.

PREFACE AND UPDATE
THE CIMEP MODEL IN ACTION

Since this report was published in March 1994, the CIMEP (Community Involvement in Management of Environmental Pollution) approach has been applied or is currently being implemented in Belize, Ecuador, and Tunisia, with plans for further expansion to other countries. With its versatility and focus on community-level mechanisms, CIMEP cuts across many development sectors—democracy strengthening, urbanization, gender, and environmental health. For those interested in the CIMEP approach, especially program designers who are considering using it, this short preface supplements the document's theoretical description of the model with some concrete examples of CIMEP in action. These examples illustrate that CIMEP can be sustainable over the long term and has been successfully adapted in different contexts and cultures. Before describing the examples, however, it is worth briefly outlining the evolution in thought and rationale behind CIMEP.

In brief, CIMEP is about promoting effective environmental health. Service agencies, government policy makers, community health and sanitation workers, and local leaders often do not communicate with one another about some central questions: What are the most important problems? What policy decisions should be made? Where should resources be focused? In looking at environmental health conditions at the root, that is, at the community level, CIMEP targets issues of participation, governance, and the creation of civil societies.

The location of CIMEP activities has been primarily in secondary cities. Although one-third of the developing world's urban population (and 12.5% of its total population) live in cities with over a million inhabitants, very little study has been done about these areas and how their institutions function.[1] Secondary city municipal governments often have limited access to resources from national governments, and technical capabilities of municipality staff are often weak. And NGO presence is not clearly defined. The CIMEP approach brings various groups together and provides them training and skills, over a one-to-two year period, to create and implement solutions together.

Belize Environmental Health Teams

A good example of CIMEP's success can be found in the case of Belize. In 1989, during the last year of a five-year national health project sponsored by USAID, officials decided to change course and apply the CIMEP approach. A project evaluation had shown that although goals had been met for infrastructure improvements (such as number of latrines built and houses sprayed for mosquito control), health status had not improved and the sustainability of the investments seemed unlikely.

Through a series of meetings and workshops, health workers at the mid- and upper levels of two ministries defined the two major problems of a dysfunctional bureaucratic structure and poor communication on

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[1] *Environmental Problems in Third World Cities*, J.E. Hardoy, D. Mitlin and D. Satterthwaite, Earthscan Publications Ltd., London, 1992.

all levels. To remedy these problems, district health teams and village health committees were established and began functioning in an effective manner. (Health committees had existed in name, but not as community health advocates.)

On the village level, the health committees gave people a mechanism to examine their own behaviors and to take responsibility for behaviors that affected their health. The district teams have been able to respond quickly and coordinate interventions to address problems, as seen when an outbreak of cholera occurred and was rapidly contained. This process has also involved informing policymakers so they can marshall resources and make decisions on a timely basis. These teams and committees are operating successfully today. In Belize, this has resulted in effective governance, a public sector responsive to environmental health, and improved well being of communities.

Tunisia's CIMEP Initiative

Funded by USAID, CIMEP/Tunisia includes a series of workshops and field assessments in two secondary cities—Sousse, a coastal city with tourism as its economic base, and Kasserine, a smaller, poorer inland city with an industrial economic base. Elected officials, city managers, and citizens/NGOs are targeted for these activities. This project began in January 1995 and will continue through June 1996.

CIMEP/Tunisia is a collaborative effort involving USAID's Office of Health and Nutrition and Office of Women in Development; it draws upon USAID's 15-year initiative of creating Water User Associations in Tunisia. The project is being implemented in collaboration with USAID's Near East and North Africa (NENA) Regional Housing and Urban Development Office's Local Government Strengthening Project (LGSP) with the government of Tunisia. (The Tunisia effort is the first of a region-wide application of the CIMEP approach.) The results of CIMEP's workshops will be linked to decision makers' roundtables convened through LGSP. Plans are underway to implement CIMEP in Jordan, Morocco, and Egypt. Linkages and relationships through USAID's Office of Democratization (in the Global Bureau) are creating the basic collaborative mechanisms for implementing CIMEP in the NENA region.

Throughout the NENA region, efforts are being made to draw in women and women's NGOs because women are most often the users of water and sanitation facilities and their input is rarely solicited by government officials and policymakers. As is true in development in general, if women are not involved, the activity is unlikely to be viable or sustainable.

One aspect of the CIMEP model is identification of environmental health problems and high-risk behaviors in specific communities or neighborhoods. To this end, socio-environmental studies were conducted by a local social scientist and environmental health specialist prior to CIMEP's March 1995 start-up workshop in Tunisia. Results from this survey are being used by workshop participants for their own field studies or to identify community-specific problems.

While the workshops are being conducted, several "micro projects," or specific environmental health interventions, will also be implemented by NGOs. The "micro projects" will provide NGOs with skills training in identifying high-risk behaviors, developing interventions, and implementing projects—all areas covered by the CIMEP workshops.

Results from the field assessments are bringing to light some of the environmental health and behavioral issues which will have to be addressed. For example, health problems have resulted from families and animals sharing cramped quarters (one- and two-room dwellings). Although Kasserine and Sousse are peri-urban areas, many of the communities studied retain characteristics of rural life. The inhabitants are herders and come from the rural areas. For them, livestock represent not only a means of livelihood, but are a cultural linkage to other lineages settled in the area. Though the setting is urban, rural people and rural behaviors are in action. To alleviate the problems, local officials are now exploring ways people can corral animals to reduce health hazards.

May Yacoob and Margo Kelly
May 1995

CIMEP activities are documented in the following publications.

Belize:

Yacoob, May, Bob Hollister, Al Rollins, and Gail Kostinko. March 1994. *Creating Institutional Capability for Community-based Environmental Health Problems: Lessons from Belize.* WASH Field Report no. 434. Arlington, Va.: WASH Project.

Tunisia:

El-Amouri, Tahar. April 1995. *Rapport de l'Atelier de Demarrage, le 3 Avril 1995, Tunis, Tunisie.* Projet de Gestion Communautaire de l'Environnements (GESCOME). (French only)

Boukraa, Ridha, and Nadia Bechraoui. *Community Risk Assessment in Tunisia: Socioeconomic, Hygienic, and Environmental Analysis of Three Outlying Quarters: R'tibat (Kasserine), Oued Blibane, and Ksibett-Chott (Sousse).* EHP Activity Report no. 7. Arlington, Va.: Environmental Health Project. (French and English)

Yacoob, May. February 1995. *Workplan for Community Involvement in Management of Environmental Pollution in Tunisia.* Arlington, Va.: Environmental Health Project.

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ABOUT THE AUTHORS

May Yacoob is an applied medical anthropologist with a postdoctoral degree in health services management. She has been with the WASH Project since 1986, and prior to WASH worked on UNDP and World Bank water supply and sanitation projects. Her areas of specialty are issues of sustainability, community management, women, and hygiene education.

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Linda Whiteford, Ph.D., M.P.H., is currently an Associate Professor of Anthropology at the University of South Florida. She has over 15 years of experience in dealing with international health related issues, including medical anthropology, maternal/child health, and political economy of health. Dr. Whiteford has lived and worked in several countries in Latin America and the Caribbean, including Mexico and the Dominican Republic.

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Our thanks to several WASH staff members for their enthusiasm and interest in this task. We wish to thank Diane Bendahmane especially for the editing magic she performed on this document. Our gratitude also to Fred Rosensweig, Craig Hafner, and Ellis Turner of the WASH Project for their continued support and constructive reviews in this long process.

EXECUTIVE SUMMARY

The poverty, disenfranchisement, and marginalization suffered by the urban poor in developing countries are reflected in the severely degraded environmental conditions that affect peri-urban areas. The residents of peri-urban communities rarely have access to safe potable water, adequate sanitation, and regular solid waste pick-up services. Because their communities are often located near transportation corridors and industrial areas, they also have high exposures to harmful air pollutants and chemical wastes. These environmental hazards have severe impacts on the health of the urban poor.

Over the last ten years, development assistance agencies working in rural areas have adopted community participation as an essential element in programs to improve water supply and sanitation, housing, forest and watershed management, and agricultural productivity. As such agencies increasingly turn their attention to urban areas, applying participatory methods in peri-urban communities presents a new challenge. The wisdom of involving peri-urban residents directly in improving environmental conditions in their neighborhoods appears clear. The question remains, however, how?

This report presents a model for building programs based on community involvement in management of environmental pollution (CIMEP) in peri-urban neighborhoods. A CIMEP program empowers the residents of a peri-urban community to investigate environmental conditions in their neighborhood, identify problems, set priorities, and plan and implement measures to address the problems that concern them the most. The model employs an approach to capacity-building that has been developed and used in the Water and Sanitation for Health (WASH) Project over the past thirteen years. Two processes unfold in parallel: (1) the technical process of identifying and evaluating environmental health problems and developing interventions to mitigate their effects; and (2) the participation process, involving a systematic program of training and communication to provide community members, local nongovernmental organizations (NGOs), and local government officials with the skills, information, methods, and practices they need to work together to plan and implement an environmental management program. The model is designed to be implemented in one community at a time. As domestic NGOs and local government agencies develop the capacity to initiate and sustain working relationships with peri-urban communities, it will become possible to develop a larger, city-wide sustainable CIMEP effort.

The CIMEP model draws from many sources. It incorporates methods used in epidemiology, environmental management, ethnography, sociology, political science, public finance, and economics. It uses experiences from work with urban communities in the United States, including experience with community-based epidemiology, risk assessment, risk communication, and group processes for decision-making. Although the model has not been applied in its entirety, each of the methods incorporated has been tested and found useful in developing countries. This report describes each of the methods briefly and provides references to more detailed guidance.

This report is intended for use by development assistance organizations, including bilateral technical assistance agencies, international NGOs, and multilateral development banks. The CIMEP model presented herein is directly applicable to developing an environmental management program for a peri-urban community. The model can also serve as a general template for designing the community-participation component of a comprehensive environmental management strategy for a city.

1

INTRODUCTION

1.1 Purpose of the Report

International development assistance agencies are turning more and more of their attention to environmental problems in the developing world's urban and peri-urban areas: water supply, sanitation, and the management of wastewater, solid waste, air pollution, and toxic and hazardous materials. The Water and Sanitation for Health (WASH) Project is part of this trend, having devoted an increasing amount of effort over the last several years to water and sanitation issues in peri-urban communities. (See WASH, "Water and Sanitation for Health in the Urban Environment.")

Many years of experience have shown that community participation is an essential element for success in rural environmental projects, whether they deal with water and sanitation services, agriculture, or forest and watershed management or are part of general rural economic development. (See Boxes 1 and 2 for reports and documents on community participation prepared by WASH and other organizations.) Several recent policy documents recognize the importance of using participatory approaches in urban environmental projects as well—including, for example, the World Bank's *World Development Report 1992*, recent policy directives issued by the new administrator of the U.S. Agency for International Development (USAID), J. Brian Atwood, the forthcoming report *Toward Environmental Strategies for Cities* (1991) from the World Bank's Urban Management Program, and the final version of Agenda 21 negotiated at the United Nations Conference on the Environment and Development (UNCED) in Rio de Janeiro, Brazil, in June 1992. Several organizations have reported on successful urban environmental projects based on community participation (see Box 3 for a selected listing). To date, however, no organization has produced a general guidance document on the *methodology* for using participatory approaches in developing and implementing urban environmental management programs. This report will begin to fill the gap.

In October 1992, the WASH Project held a workshop to explore how USAID could incorporate community participation as a core element in projects to improve water supply, sanitation, and other environmental conditions in peri-urban areas. The results of the workshop and subsequent work are described in this report, which **proposes a general process, or model, for facilitating community participation in the identification and resolution of environmental problems that affect the health of residents in the peri-urban communities of developing countries.** This report also describes the steps a municipal government should take to establish and maintain a

Box 1: WASH Documents on Community Participation

For results from research on the impact of community participation, see:

Eng, Eugenia; John Briscoe; and Anne Cunningham. 1987. *Community Participation in Water Supply Projects as a Stimulus to Primary Health Care: Lessons Learned from A.I.D.-Supported and Other Projects in Indonesia and Togo.* Technical Report 44.

Eng, Eugenia. 1989. *Community Participation in Water Supply Projects and ORT Activities in Togo and Indonesia.* Field Report 260.

For conceptual frameworks and operational guides, see:

McCommon, Carolyn; Dennis Warner; and David Yohalem. 1990. *Community Management of Rural Water Supply and Sanitation Services.* Technical Report 67.

Yacoob, May, and Philip Roark. 1990. *Tech Pack: Steps for Implementing Rural Water Supply and Sanitation Projects.* Technical Report 52.

Donnelly-Roark, Paula. 1987. *New Participatory Frameworks for the Design and Management of Sustainable Water Supply and Sanitation Projects.* Technical Report 52.

Yacoob, May, and Fred Rosensweig. 1992. *Institutionalizing Community Management: Processes for Scaling Up.* Technical Report 76.

For selected field activities in community participation, see:

Rosensweig, Fred; Tahar El Amouri; and Lee Jennings. 1992. *Summary Report of the Action Plan to Develop the National Strategy to Create and Monitor Water User Associations.* Field Report 368.

Isley, Raymond, and David Yohalem. 1988. *A Workshop Design for Community Participation, Vol. 1 and 2.* Technical Report 33.

Yacoob, May; Kathy Tilford; Howard Bell; and Thomas Kenah. 1987. *CARE/Sierra Leone Community Participation Assessment.* Field Report 217.

Yacoob, May; Dan O'Brien; and Rick Henning. 1989. *CARE Indonesia: Increasing Community Participation and Developing a Basic Strategy for Hygiene Education in Rural Water and Sanitation Programs.* Field Report 284.

dialogue with peri-urban communities, so that their needs can be taken into account in the city's environmental management program. Other authors have used the phrases "community-based environmental management" (Borrini, 1991) and "primary environmental care" (Pretty, 1992) to refer to the general topic we address. We have adopted the phrase "community involvement in

management of environmental pollution" and refer to the proposed process as the "CIMEP model."

Local governments in developing countries face an array of environmental health problems that are growing more complex and that are particularly severe in peri-urban communities. Because they compete with many other issues for attention and resources, there is a pressing need for analytical and procedural methods that will help local governments set priorities, make sound policy decisions, and implement effective environmental management programs. We believe that the CIMEP model will help meet this need and will further the development of a comprehensive approach to community participation in urban environmental management.

Box 2: Lessons Learned on Community Participation

Cernea, M. ed. 1985. *Putting People First: Sociological Variables in Rural Development*. New York: Oxford University Press. Revised 1991.

Chambers, Robert; Arnold Pacey; and Lori Ann Thrupp. 1989. *Farmer First: Farmer Innovations and Agricultural Research*. London: Intermediate Technologies Publications.

Korten, David C., and Norman Uphoff. 1981. *Bureaucratic Reorientation for Participatory Rural Development*. Working Paper 1. Washington, DC: National Association for Public Administration.

Molnar, A., and G. Schreiber. 1989. *Women and Forestry: Operational Issues*. Working Paper. Washington, DC: World Bank, Population and Human Resources Department.

Moser, Caroline O.N. 1989. "Community Participation in Urban Projects in the Third World," *Progress in Planning*. Vol. 32, Part 2. Oxford: Pergamon Press.

Ogun, B., and K.H. Smith. 1991. *Participatory Development Summary Report. Innocenti Global Seminar, 21-29 May 1990*. Florence: UNICEF, International Child Development Center.

Paolisso, M., and Sally Yudelman. 1991. *Women, Poverty and the Environment in Latin America*. Washington, DC: International Center for Research on Women.

Paul, Samuel. 1987. *Community Participation in Development Projects: World Bank Experience*. Washington, DC: World Bank.

1.2 Intended Audience and Applications for the CIMEP Model

The audience for this report is the professional staff of development assistance organizations (bilateral technical assistance agencies, international nongovernmental organizations (NGOs), and multilateral development banks) who are responsible for designing urban environmental management projects and wish to incorporate participatory methods. Field staff responsible for implementing such projects will also find the document useful as an introduction to the topic and as a source of references to more detailed information on methods.

Community involvement improves the chances for success in environmental management projects, whether they address a single problem or many and whether they are short- or long-term. Increasingly, community participation is being made an integral part of project design as well as project implementation. Thus, we anticipate that the CIMEP model will be useful in at least three contexts:

Box 3: Urban Environmental Projects

Braga, M.; B. Christina; and Enzo R. Bonetto. 1993. "Solid Waste Management in Curitiba, Brazil—Alternative Solutions," *Journal of Resource Management Technology*, Vol. 21, No. 1, p. 11.

Lahani, B.N., and J.M. Baldisimo. 1991. "Scavenging of Solid Waste in Manila," *African Environment*, Vol. 8, Nos. 29-30, p. 68.

Malla, Dji. 1990. "Ambasstna Nadif: Lessons from an Experimental Household Rubbish Collection Project," *BAOBAB*, Vol. 4.

Razeto, Jorge, and Libero Hemelryck. 1991. "Community Participation in Waste Recycling and Management," *African Environment*. Vol. 8, Nos. 29-30, p. 147.

"Sustainable Cities: Meeting Needs, Reducing Resource Use and Recycling, Re-use and Reclamation," *Environment and Urbanization*, Vol. 4, No. 2. 1992.

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- Development assistance projects that help national or local governments prepare and implement comprehensive urban environmental management plans.
- Development assistance projects that address preselected environmental problems in a city's peri-urban areas, such as lack of access to safe water and adequate sanitation.
- Technical assistance to develop designs for both kinds of projects listed above.

Development professionals should consider incorporating the CIMEP model into scopes of work for these types of efforts. Whether it is appropriate to use a participatory approach in a specific project depends on one's objectives. The next chapter discusses the characteristics, goals, and objectives of community involvement in management of environmental pollution.

2

CIMEP DEFINED

2.1 Community Involvement in a Peri-urban Context

A "community," as the term is used in this document, is a group of people living in a defined, delimited area and sharing common physical resources (land, water, and infrastructure). In an urban or peri-urban area, the geographic boundaries of a neighborhood often serve as a de facto boundary for defining a community. Although the members of a geographically defined community may differ from each other in many ways and disagree with each other on many issues, they are all interested in maintaining a healthful environment. This common interest arises from sharing common physical resources: the behavior of one community member may have a direct effect on the health and welfare of other members.

Over the last ten years, many development assistance programs have stressed the importance of community participation. In water, sanitation, and housing programs, community participation has typically meant requiring beneficiaries of a construction project to contribute labor and/or money and take responsibility for managing the facilities. More recently, participation has included involvement in selecting the technology and designing the facilities to be built. Community participation is viewed as a necessary component of making housing and infrastructure projects sustainable.

CIMEP takes these concepts of community participation several steps further. "Participation," as used in this report, means involving community members in identifying, characterizing, and prioritizing environmental problems and developing and implementing environmental management plans. The concept also includes training community leaders and government officials to conduct a sustained dialogue with each other about environmental management. This approach builds a lasting capacity in the city government for working with peri-urban communities and a lasting capacity in communities for evaluation, group decision-making, and advocacy. Community members may contribute labor and/or money during the implementation phase of a project but they will already have been involved in identifying the problems they consider most important, devising ways to address those problems, and working with the local government to get the resources and actions they need.

Peri-urban residents are affected by a variety of environmental health problems, some originating within the community and others originating from outside. Although ambient air pollution, industrial wastes, and other external hazards present significant and increasing risks to peri-urban communities, the vast majority of environmentally related illnesses are still attributable to polluted water, inadequate sanitation, unhygienic conditions, and (probably) indoor air pollution. The major illnesses that kill or weaken the poor—both urban and rural—are diarrheas, cholera, dengue

fever, malaria, and acute respiratory infections. Many of these illnesses can be reduced markedly through improved access to basic services and changes in people's behavior in their homes and communities. The CIMEP model is based on a belief that community empowerment is a cumulative process. People who learn to take effective action in their homes and communities will gradually develop the higher level of organization and knowledge required to take action to address problems that originate outside the community.

2.2 The Benefits of CIMEP

The goal of CIMEP is to improve urban environmental conditions that affect public health. It may have other benefits also, for example: promoting effective democracy, decentralizing government authority, and making government more responsive. While we acknowledge the inherent value of these other benefits, we believe the prime reason for adapting the CIMEP approach is that participatory approaches have been shown repeatedly to be effective—indeed, essential—for achieving sustainable improvements in environmental conditions and health.

2.3 Community Roles in Managing Environmental Pollution

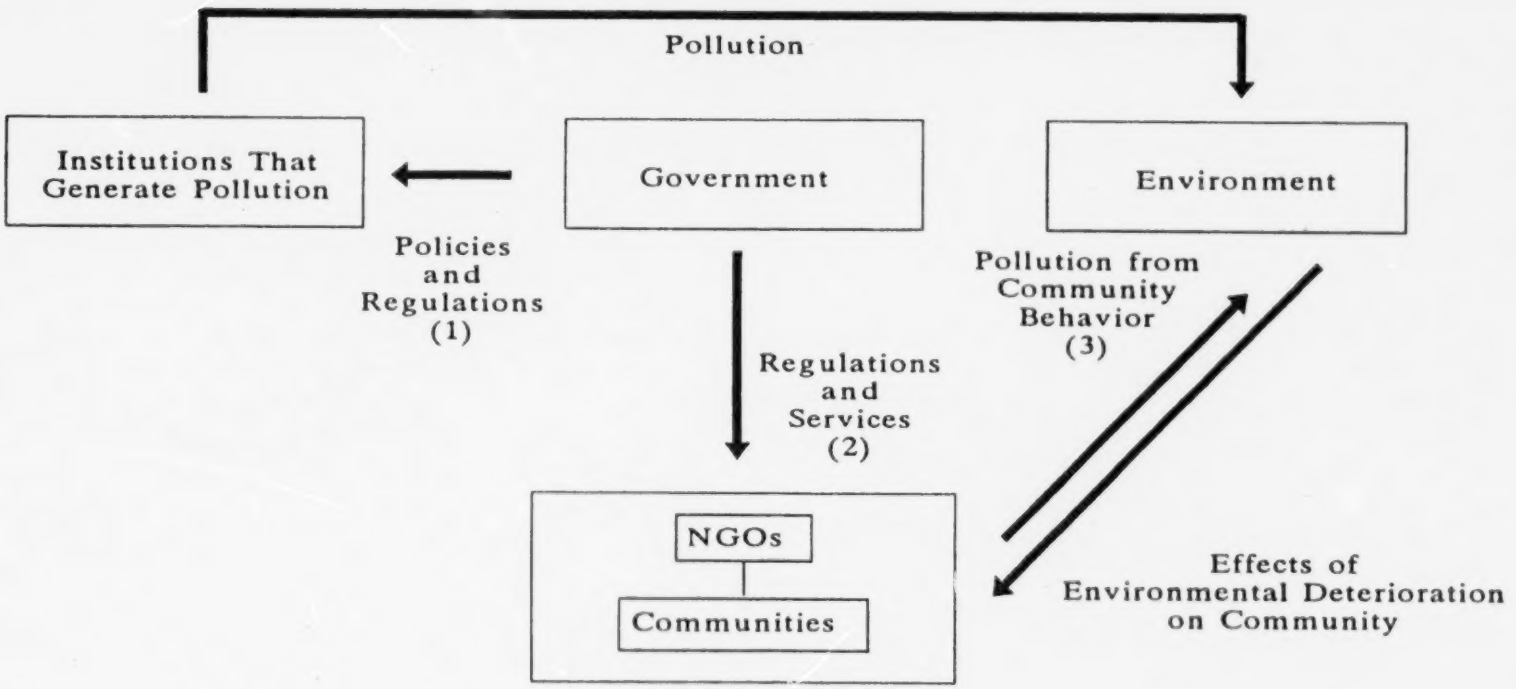
The CIMEP model derives from a conceptual framework that places communities at the center of a system for managing activities that degrade the environment. Figure 1 depicts how communities can improve the quality of the environment in which they live by changing their own behavior, advocating change in government policies and the pollution-generating practices of industry and other sources, and advocating improvements in environmental services (e.g., water supply, sanitation, and solid waste pick-up) to the community. To act effectively, communities need knowledge and information on three topics: (1) the sources and underlying causes of pollution—not just pollution attributable to industry and other external sources but also pollution directly attributable to the behavior of members of the community; (2) government policies that affect environmental quality and the government's authority to regulate pollution-generating practices; and (3) the nature and extent of environmental deterioration resulting from pollution and the effects such deterioration has on community health and welfare.

Environmental management programs take place in three phases: assessment, planning, and implementation. Communities play a central role in all three phases, as shown in Table 1:

- In the assessment phase, communities participate directly in the identification and evaluation of environmental problems.
- In the planning phase, communities decide which environmental problems should be addressed first and then work with the municipal government to develop plans to address those problems.
- In the implementation phase, communities implement portions of the environmental management plan, monitor the overall progress of the plan, and participate with the city government in periodic reassessments of problems and priorities.

The process also has an institutional aspect: Community members identify institutions that are affecting the condition of their environment and create organizations to represent their interests to such institutions. They learn to create channels for communication with government agencies so that they may participate in, advocate, and even help develop legal and regulatory procedures. In short, in a CIMEP program, members of concerned communities are provided the conceptual and technical skills they need to help define, assess, manage, and monitor their environment and the health risks it creates.

Improving environmental health conditions requires extensive permanent changes in institutional and individual behavior, changes that both research and practical experience have shown are more likely when the people whose behavior needs to change are involved in all stages of planning and implementing the change. Thus, community-based approaches are the key to effectiveness. They are also efficient. On the one hand, community members possess important information about the problems that affect them; on the other, their participation creates demand (i.e., a willingness to pay) for environmental infrastructure, services, and regulation. Finally, community-based approaches are ethical because all people should have the right to participate in decisions that affect the fundamental conditions of their lives.



The environmental deterioration that affects communities arises from two types of sources: public and private institutions that are external to the community; and the community itself. The former are affected by government policies and regulations, the latter by regulations and environmental services. Communities may influence these processes via three pathways:

(1) by advocating changes in government regulations that control external sources;
(2) by advocating changes in government regulations and services directed to the community; and
(3) by changing the pollution-generating behavior of community members.

Figure 1

How Communities May Influence Environmental Conditions That Affect Them

Table 1

Community Roles in Urban Environmental Management

Assessment Phase	Planning Phase		Implementation Phase
Help identify problems that will be studied. Help determine the scope of assessments. Participate in data collection and evaluation. Learn how environmental pollution arises and how it affects the community.	Obtain information and share it within community to ensure that people understand problems being considered. Hold internal negotiations to agree on community's priorities. Determine community's willingness to support, participate in, and pay for interventions to address priority problems.	Advocate community's interests in negotiations with government to set official priorities. Help design interventions that meet community's needs and reflect community's real patterns of resource use and waste generation.	Play an active role in interventions and behavioral changes that can be implemented at the community level. Monitor program implementation and changes in environmental and health conditions. Maintain dialogue with city government to advocate for community's needs. Participate in periodic reconsideration and revision of problems, priorities, and management plans.

2.4 Essential Characteristics of CIMEP Programs

Three objectives must be realized for a CIMEP program to achieve its goal of improving environmental conditions in peri-urban areas. First, a CIMEP program must improve a community's knowledge of environmental health problems and its ability to participate directly in identifying, evaluating, and resolving them. For this, community members need technical information and skills. Second, a CIMEP program must facilitate communication and effective decision-making within the community. This requires training community representatives in public communication, leadership, and meeting facilitation skills. Third, a CIMEP program must

facilitate effective communication between community representatives and government policy makers in the formulation of environmental health policies and programs. For this, public officials need to learn new skills for communicating so that they begin relating to communities as clients and allies, rather than as demanding adversaries. City governments need to develop the human resource capacity and the governance processes to sustain an ongoing dialogue about environmental management with peri-urban communities.

2.5 Conditions Affecting Applicability of the CIMEP Model

The success of a community-based approach depends on a range of political, social, and technical issues. These are discussed in detail in Chapter 3. However, three of them should be considered at the outset in determining whether the model can be used at all.

2.5.1 Political Support

The extent of political support for community participation is the first of these issues. The CIMEP model fosters productive collaboration between communities and government, based on sharing information and responsibility. In the process, community organizations gain information and skills that help them promote their own interests more effectively. Obviously, these skills can also be used to demand or oppose government actions. If central or local government officials view community empowerment as a threat to their authority and consider the threat more important than the potential benefits, they are likely to block the community's access to information and its participation in decision-making processes, defeating any real chance for effective collaboration.

Part of the work in implementing the CIMEP model is to help government officials understand the benefits of community involvement and learn how to interact with community organizations; however, there must be sufficient interest and political support for the effort to succeed. Before initiating a CIMEP project, development officials should decide whether there is enough political support to go ahead. The model is most likely to succeed where the national government is decentralizing its authority and strengthening local government capacity, and where local governments are eager to use their new authorities and independence to find innovative solutions to problems.

2.5.2 Nature of the Problem to Be Addressed

The second issue concerns the type of environmental problems to be addressed. CIMEP is most useful, at least in the near term, for dealing with problems at the household and neighborhood level (e.g., providing potable water, disposing of human excreta and solid waste, and reducing indoor air pollution and food contamination). It is less effective in addressing national, regional, or city-wide problems that involve the transport of pollutants from distant sources or the behavior

of large groups (e.g., motor vehicle pollution of ambient air, surface water contamination by agricultural run-off, or hazardous waste management).

Communities that have organized to deal with local problems will eventually be in a better position to advocate environmental improvements that go beyond their community. By building participatory skills and promoting responsive government, a CIMEP project that deals with local problems might eventually have an impact on regional or national problems. Dealing with local problems, however, must come first. Development officials should not attempt to apply the CIMEP model in a project that is devoted exclusively to dealing with regional- and national-scale environmental problems.

2.5.3 Time and Funds Available

The third issue to consider before deciding to use the CIMEP model has to do with time and money. Changing people's behavior and developing empowered community organizations takes time and cannot be achieved without expert assistance. Many development projects accord community participation an important role on paper but do not provide adequate time and money to do the job. Consequently, the work may be performed by advisors with insufficient training and experience in capacity building and training. Project managers are disappointed when they look for quick (and sustainable) changes. A CIMEP program should not be launched unless there is enough money to hire qualified professionals and unless the project managers will allow enough time to see real results.

* * *

This chapter has described the objectives and rationale underlying a community-based approach to environmental management. The next chapter provides a detailed, step-by-step description of the activities that comprise the CIMEP model.

3

THE CIMEP MODEL

3.1 Overview

3.1.1 Basic Structures

The CIMEP model involves two processes that unfold in parallel. One is the technical process of identifying and evaluating environmental health problems, setting priorities, and designing and carrying out an environmental management plan. The other is the community involvement process, in which community representatives, leaders, and government officials receive systematic training and other assistance to help them establish an effective and sustainable dialogue.

3.1.2 Participants

Representatives from five distinct groups participate in the CIMEP process.

- Local (and often provincial or central) government agencies responsible for environmental management, health, infrastructure and environmental services, and finance.
- Peri-urban communities.
- Industrial facilities and other public and private institutions that contribute to environmental pollution in the community.
- A credible, national NGO with an interest in environmental health issues.
- Technical advisors and officials from the development assistance agency or agencies sponsoring the CIMEP effort. Representatives of the first three groups—municipal government, communities, and public and private institutions—comprise the Environmental Management Committee (EMC), which coordinates the CIMEP process and is the forum for all formal negotiations among the groups. The national NGO and the technical advisors serve as advisors to the EMC.

Municipal governments and communities bear the principal responsibility for establishing and maintaining CIMEP programs. A municipal government is responsible for managing environmental conditions in its city and, therefore, should take the initiative in establishing a CIMEP program. For such a program to succeed, city officials and community representatives need to learn to work together, maintain open lines of communication, and negotiate changes in

how they share responsibilities. They must also perform the technical tasks involved in assessing environmental conditions in the community and developing an appropriate plan for improving those conditions.

The national NGO helps city officials and community representatives set up a CIMEP program by training them in the technical and process skills they need to succeed. The NGO also facilitates interchanges between the city and the community in early stages of the CIMEP process and, if necessary, represents the community's interests until effective community representatives emerge. In the model put forward here, the national NGO provides an ongoing training function and, over time, will disseminate the CIMEP approach throughout a country by working in more and more cities.

Technical advisors have a transitory role—to train the national NGO's staff in the skills they need and to help them perform their functions until they can sustain the program on their own. This model requires intensive training and assistance in establishing the first CIMEP program and gradually decreasing investments over a one- to two-year period.

3.1.3 The Technical Process

The technical process evolves through three phases: assessment, planning, and implementation. In the assessment phase, the team of technical advisors leads an initial assessment and then involves community members in a more detailed field investigation in which data on environmental conditions and public health are collected and evaluated. The planning phase involves the community in setting priorities and developing an Environmental Management Plan. In the implementation phase, the plan is carried out, monitored, and periodically reevaluated. The technical process is described in detail in Chapter 4.

3.1.4 The Community Participation Process

The community participation process also evolves through phases. Early in the process, the national NGO takes an active and visible role in gathering information and sharing it with the community. As the technical work progresses, some members of the community are likely to express a special interest in environmental management activities and emerge first as leaders and then, through formal or informal selection, as "community representatives." Next, these community representatives develop a structure within the community for discussing problems, making decisions, and taking action on behalf of the community. For example, the members of neighborhood health committees, or volunteers from health programs (e.g. malaria control staff and primary health care workers) might take responsibility for coordinating the community's involvement in investigations. They could also receive training in group leadership skills and lead discussions in which the community establishes its priorities. Technical advisors provide appropriate assistance during each of these phases.

The structure for community involvement should be developed as early as possible. In ideal circumstances, community representatives emerge during the field investigation phase, and the community's formal decision-making structure can be established at the beginning of the planning phase so that the community can participate with a strong voice in the priority-setting process. Since it is the mechanism through which a community will fulfill its responsibilities under the Environmental Management Plan, the formal structure must be functioning before the implementation phase begins.

3.1.5 Flexibility in Applying the CIMEP Model

The CIMEP model is not carved in stone. As with all models, it should be applied flexibly to accommodate specific field conditions, altering the sequence of activities and methodologies when appropriate. For example, a fairly brief field investigation may reveal that community residents are concerned about sanitation and solid waste problems, but have little patience for examining and prioritizing other potential risks. Dealing with the community's present concerns may be a better path to promoting their long-term involvement in improved environmental management than conducting a more thorough investigation at the outset. Once measures have been put in place to address the community's present concerns, broader investigations may be easier and more productive.

The model is also flexible as to the selection of participants and assignment of roles and responsibilities. In particular, it may be appropriate to involve participants other than those described or to assign roles differently to fit local circumstances. Thus, although the model anticipates that the work ascribed to technical advisors will be performed at first by expatriates on short-term assignments, it could be performed by qualified local consultants or government personnel. Indeed, one of the objectives of the model is to develop local capacity for environmental planning and management; even the most technical work should eventually be performed by local personnel. Similarly, the role of the local NGO may be filled by municipal or regional government staff, if these officials have direct access to communities.

3.2 Step-by-Step Description of the CIMEP Model

The model integrates the technical and community participation processes in 10 steps, as depicted in Figure 2. Chapters 4 and 5 provide more detail on the methods used in each of these steps.

3.2.1 Step 1. Establish an Environmental Management Committee

Efforts to initiate a CIMEP program are made in response to a request from a local or national government or a national NGO to a development assistance agency. After the agency has approved the project and selected its team of technical advisors, these advisors establish contact with interested government officials and NGO leaders and then work with government

representatives to contact interested public and private institutions. The technical advisors explain the purpose of and plans for the CIMEP effort.

To coordinate the effort, local officials bring together representatives from government agencies, affected public and private institutions, and the community in an Environmental Management Committee (EMC). NGO representatives and technical experts are advisors to the EMC, not members. However, NGO representatives may sit on the EMC to represent the interests of the community until bona fide community representatives emerge to take their place.

3.2.2 Step 2. Conduct an Initial Assessment

The team of technical advisors works with NGO representatives and local government staff to develop political, economic, financial, and environmental profiles of the community using standard data collection methods , secondary (existing) data from official sources, interviews, focus groups, and direct observation.

Through their contacts with the community, the technical advisors and the NGO representatives learn what community members consider to be the most important environmental and health problems affecting their community. These initial contacts should generate interest among community members for participating in later activities.

3.2.3 Step 3. Select Problems for Further Study

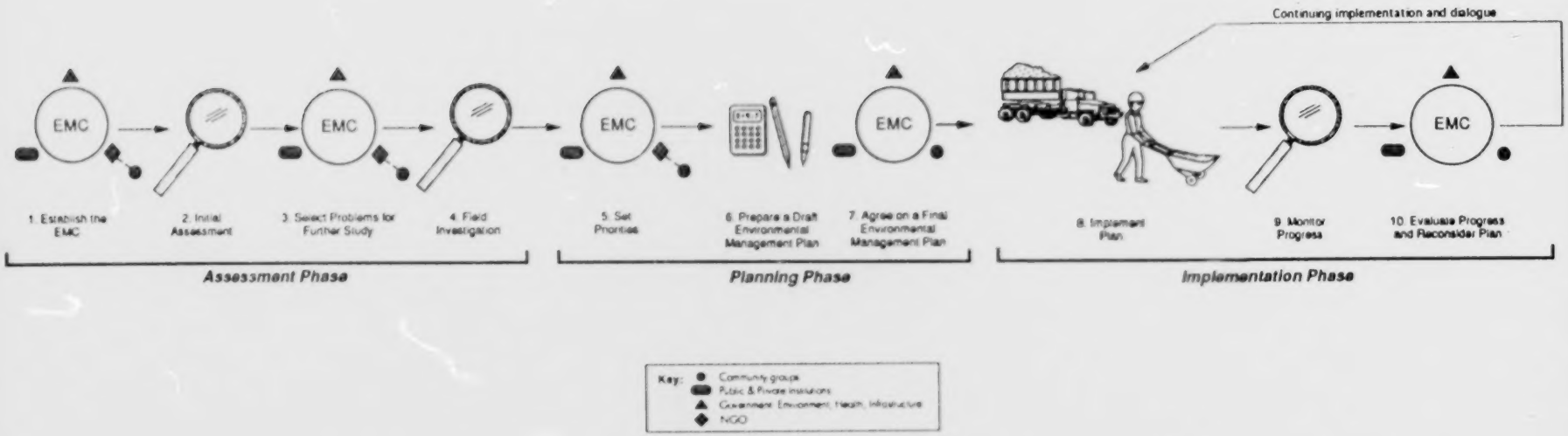
The NGO representatives and local government staff present the results of the initial assessment to the EMC. After reviewing the information, the EMC develops a list of problems to be studied further. This list constitutes the scope of work for the next step, the field investigation. Members of the EMC report back to their constituencies; the NGO representatives report to the community.

3.2.4 Step 4. Carry Out a Field Investigation

The technical advisors work with the NGO, local government staff, and local resource people to carry out a field investigation, limiting their attention to the list of problems developed in step three. The field investigation consists of

- Characterizing the nature, extent, and source of the environmental problems and determining the risk each poses to people's health.
- Identifying and evaluating current government policies and practices relev[illegible] to these.
- Identifying and evaluating the technical and financial capacities of parties w[illegible] a current or potential role in environmental management, including government ag[illegible]cies, public and private institutions, and the community.

Figure 2. Steps in the CIMEP Process



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- Determining the community's effective demand (willingness and ability to pay) for new infrastructure and services.

The NGO representatives are trained so that they can play an active and visible role in the field investigation, and community members who show a keen interest in it are encouraged to participate and are included in technical and leadership training to the maximum extent possible.

3.2.5 Step 5. Set Priorities

The NGO representatives and local government staff meet again with the EMC and present the results of the field investigation. The EMC plans processes for disseminating the results to the community, soliciting reactions from interested parties, and developing a prioritized list of problems to be addressed in the Environmental Management Plan.

Next, the NGO and local government representatives meet with community groups to present and explain the results of the field investigation. Discussions are designed to accomplish three objectives. They should convey information to the community about the health risks associated with existing environmental conditions, help the community set priorities regarding the environmental health problems to be addressed in the Environmental Management Plan, and discuss the community's willingness to pay for service and infrastructure improvements and take direct responsibility for other environmental management functions.

To be able to set priorities, community members must understand the problems that exist and appreciate the risks they pose. Sophisticated communication methods and a series of community meetings, with adequate time for dialogue within the community, are the backbone of this educational effort. As they learn, community members develop a vision of the environment they want to create and live in and decide what steps they can take to get there.

Community representatives are likely to emerge during this period of intense public discussion. If their role vis-a-vis the community is credible, whether established by a formal selection process or not, they should assume their position on the EMC before it begins to discuss priorities.

After community members have had an adequate opportunity to discuss the issues and give their input, the EMC considers results from the field investigation and input from all interested parties and then decides which environmental health problems are the highest priority and should be addressed in the Environmental Management Plan. Members of the EMC report to their constituencies on the problems to be addressed and the anticipated schedule for developing the plan.

3.2.6 Step 6. Prepare a Draft Environmental Management Plan

Working with EMC, the NGO representatives and local government staff prepare a list of options for addressing the problems identified and estimate the probable benefits and costs of each option. The NGO representatives then present this list to the EMC and, if necessary, to the representatives of a broader group of government, community, industry, and other institutions that might be affected by the plan. After consultations on the list of options have been completed, the EMC selects the options to be included in the first draft of the Environmental Management Plan.

The NGO representatives and local government staff prepare the draft plan. In addition to describing needed changes in institutions, technology, training, and policies and addressing issues of phasing, financing, and allocating responsibility, this draft also defines the community's responsibilities and training needs and explains how the EMC or a successor organization will monitor progress in carrying out the plans. Developing the draft plan may require several iterations and rounds of consultation.

3.2.7 Step 7. Agree on a Final Environmental Management Plan

The NGO representatives and local government staff present the draft plan to all interested parties, who, in turn, discuss the implications of the plan and provide input to the EMC. The technical advisors work with the NGO and government representatives to ensure that the planning process remains open and inclusive. This stage is important in the creation of voice and representation for the community and must be given adequate time, attention, and investment.

If bona fide community representatives have not emerged previously but do so at this time, they should assume their positions on the EMC.

The EMC considers input from interested parties, negotiates compromises, resolves outstanding issues, and makes a final decision on the content of the Environmental Management Plan. Then the EMC meets with representatives of each interested party, discusses how issues have been resolved, and secures a commitment from them to support the plan. The NGO representatives and technical advisors are responsible for revising the plan throughout these negotiations and for incorporating all agreed-upon changes in the final version.

3.2.8 Step 8. Implement the Environmental Management Plan

Members of the EMC present the final Environmental Management Plan to all interested parties in a public forum with appropriate ceremony. The meeting provides an opportunity for all parties to publicly declare their commitment to join in carrying out the plan. Once the plan has been accepted, implementation begins: all parties initiate the actions for which they have accepted responsibility.

Community members monitor the implementation of the plan and any resulting changes in environmental or health conditions in their community. They evaluate progress toward their

goals and, as appropriate, reconsider their needs and priorities. The NGO continues training people from the local government and the community as needed to support implementation of the plan.

In periodic meetings, the EMC or its successor organization identifies and makes changes needed to sustain progress in environmental improvement and community participation.

Continued training and involvement help community groups become more effective advocates for government action to meet their needs, through policy changes, legal reform, and improvements in infrastructure and services. Community groups also become more effective in persuading community members and institutions to change their behavior in ways that improve the environment. Over the long term, community groups can be expected to expand their focus and move on to address other concerns.

3.2.9 Steps 9 and 10. Monitor Progress and Adjust the Model

During implementation, a concerted effort is made to monitor and evaluate progress and feed the results back into planning.

3.3 Using the CIMEP Model in City-Wide Environmental Management

The previous section describes the model as it would be used in one or two representative peri-urban neighborhoods. It is most commonly applied, however, in developing (or augmenting) and implementing city-wide environmental management programs. A municipality that is developing such a program might wish to apply the CIMEP approach in many communities simultaneously. Given the limits on donor funding and the capacity of NGOs and local governments, however, it is unrealistic to expect to take on an effort so wide in scope.

A better strategy is to apply the model in a few communities first, using this experience to build technical capability in the NGO and the local government. Then, as the capabilities of NGO and government staff improve, they can extend the work to other communities. Within a period of about two or three years, this approach can produce local (neighborhood-level) institutions that are capable of sustaining a community-based approach to urban environmental management.

Negotiations, workshops, and discussions between municipality staff and NGOs and national-level policymakers will result in a special program in a local government's environmental management or public works department that is responsible for environmental management initiatives. This "CIMEP section," or program, will be responsible for establishing and maintaining a dialogue between the local government and representatives of the city's peri-urban communities, as well as providing regular short training in emerging technical and process issues. The EMC will become a functioning technical team. Over time, as the community environmental management program is extended to more and more communities, they will each have a permanent representative on the EMC, whose experience will be shared to motivate other neighborhoods.

This long-term strategy for building capacity in a national NGO and a local government proceeds in three stages.

- *Stage One.* Two or three communities are selected. They should roughly represent the range of circumstances in the city's peri-urban areas in terms of population density, environmental conditions, and the socioeconomic status of their residents (ethnicity, tribe, religion, income, occupation). The technical advisors work closely with the NGO and local government to apply the CIMEP model in these selected communities, providing training, modeling participatory behavior, facilitating interchanges among the participants, and helping perform the technical investigations and analyses as required. This first stage takes about six months. When it has been completed, there will be a core group of professionals in the local government and the NGO who have responsibility for and some experience in CIMEP. The city will have established communication links with two or three communities, collected detailed information on their environmental and public health conditions, and agreed with them on the first steps needed for improving their environmental conditions. If the local government needs to make decisions about environmental regulations or services that will affect many peri-urban areas, it can use the information collected in these first few communities as an indication of the circumstances that probably exist in other communities not yet examined.

- *Stage Two.* The CIMEP model is applied in three or four additional communities while the agreed-upon actions are implemented in the communities involved in stage one. The NGO and local government staff take on more responsibility, concentrating on improving their process skills and building effective communication links between the local government and the communities. The technical advisors provide intensive training in process skills for the NGO and local government staff. Because the NGO will have an ongoing training function, its staff members are also trained in training skills ("training of trainers"). Then the NGO staff in turn provide training in process skills for community residents and local government staff and facilitate communication between these groups. The technical advisors provide oversight and assistance as required for the communication-building activities and still take the lead role in planning and managing the technical investigations. This stage should take about eight months to a year based on previous experience. By that time, the core NGO and local government staff will have improved their process skills and gained additional experience with the CIMEP model; the NGO will have gained some experience in training others in process skills; and the city will have established communication links, collected information, and made agreements with several additional communities.

- *Stage Three.* The third stage concentrates on developing the technical skills of the NGO and local government staff. The NGO and the local government initiate and manage environmental efforts in several additional communities, while continuing to implement agreements reached with communities involved in stages one and two. The NGO and local government staff assume full responsibility for all work in building communication between the city and the communities, i.e., providing process-skills training, facilitating

meetings, sharing information, and doing all technical work in an open and participatory manner. Technical advisors provide intensive training for NGO and local government staff in technical skills, i.e., how to collect and evaluate information on environmental and health conditions and develop an Environmental Management Plan specifically applicable to a particular community. The NGO staff also participate in training-of-trainers sessions to prepare them to pass on technical skills. The NGO and local government staff manage all aspects of the CIMEP effort, including technical investigations and analyses, with oversight and assistance from technical advisors if necessary. This stage should take another eight months to a year, at the end of which the NGO and local government staff will have had experience in leading all aspects of the CIMEP model; the city's CIMEP program will be active in all municipality neighborhoods and the NGO will be prepared to train people in other communities and the local government staff from other cities in all of the skills needed to extend application of the model.

The role of the technical advisors ends at this point. The NGO should have attained the capacity to continue, with appropriate financial and political support from the national government.

3.4 Some Constraints on Applying the CIMEP Model

For the community-based management model to work, a municipal government must be willing to devote its own people and resources to improving conditions in peri-urban communities. Such areas are typically settled by squatters outside of the legal system for titling and developing land, and municipal governments do not recognize them as legitimate settlement areas with a claim on public resources. In many cities, municipal governments would prefer to eliminate peri-urban areas or ignore them, rather than improve them. Where this attitude prevails, community participation will not work because there is no program for the community to participate in. A successful CIMEP program requires extensive involvement and commitment from the municipal government. The model is a strategy for improving the effectiveness of city services and the environmental management efforts, not for circumventing the local government.

Similarly, for a CIMEP program to work, community residents must be willing to devote their time and resources to improving conditions in their neighborhoods. To do so, they must expect to enjoy the benefits of their investment, which means they must expect to stay in the community for some time and be able to hold onto the property they improve. Thus, security of land title (or other means of assuring tenancy) and the expected length of residence are important factors in determining whether or not a CIMEP program is feasible. Where residents do not expect to stay long or cannot hold on to property they improve, they are unlikely to make investments in improving environmental conditions.

Another fact of life in peri-urban areas is that the urban poor, particularly women, have little time, money, and other resources to spare. The many responsibilities of women—bearing and caring for children, maintaining the household, earning income, and performing volunteer work in their community—are well documented across cultures. Field experience suggests that while people will invest time and money in activities that improve their own and their children's well-

being, development assistance projects are often unrealistic about how much people can give and unclear about what they expect people to give. (See Moser, 1989, and Kudat and Fon, 1990.) In implementing a CIMEP project, we anticipate that community residents will need to be paid a reasonable sum to compensate them for their time to participate as representatives to the EMC or in data collection and analysis activities.

It is uncommon for people to be paid for this sort of participation. In fact, it has generally been assumed that the poor will donate their time for development activities. However, some experiences in the past few years have used participant payments (Moser, 1989, and Salem-Murdock and Niasse, 1993). In Ecuador and Senegal, women were selected as research assistants and were trained in data gathering, analysis, and interpretation. This approach, by building local capacity and taking advantage of the information and knowledge possessed only by local people, improved the quality of the research. It was also quite affordable.

Paying for local participation addresses some of the inherent contradictions of participatory assistance. Held back by poverty and its accompanying powerlessness, the poor have a better chance to attain their goals with the support of outsiders who bring power and resources. However, this interaction only serves to intensify the dichotomy between the poor and the outside "expert," no matter how participatory the process is. Wolf (1990) describes the power equation in these situations as "power that not only operates within settings or domains but that also organizes and orchestrates the settings themselves and that specifies the distribution and direction of energy flows." Paying for participation cuts into that dichotomy and tips the balance slightly in the direction of the poor.

3.5 The Role of Risk Assessment

The field investigation phase involves conducting an environmental health risk assessment (see Chapter 4). Risk assessment methods are being used in the United States and other countries to estimate to what degree specific environmental hazards pose a public health risk. They are designed to measure the severity of an environmental hazard, the nature and magnitude of people's exposure to the hazard, and the likely consequences of such exposure for the health of individuals and groups. (For descriptions of the health risk assessment methodology, see Pierson, 1991; Paustanbach, 1989; and EPA, 1987.)

The residents of urban areas are usually exposed to a number of environmental hazards. Risk estimates compare the severity of different hazards and determine which pose the greatest health risk; the technique for such an analysis is called comparative risk assessment. In the United States, the Environmental Protection Agency, a growing number of states, and a few municipalities are using comparative risk assessment techniques to set priorities for their environmental management programs. A description of comparative risk assessment methods may be found in *Facing the Future: Comparing Risks and Setting Priorities*, a document published in 1993 by the U.S. Environmental Protection Agency. According to data from the Northeast Center for Comparative Risk, eight states have projects with completed rankings, twelve states have projects

under way, and ten states are in the planning stages for comparative risk projects (*Comparative Risk Bulletin*, June 1993; see also EPA, 1990).

Comparative risk assessment is also being used with increasing frequency in developing countries. Studies have been written on assessments conducted in Ecuador (Arcia *et al.*, 1993), Thailand (USAID, 1990), and in countries with hazardous chemical systems (Smith, Carpenter, and Faulstich, 1988).

Risk assessment is a valuable tool for making sure that public and private investments in environmental protection address problems that pose a genuine and substantial risk to public health. However, it has been criticized for a number of reasons, one of which is that the process sometimes vests self-appointed science and health "experts" with the power to make subjective value judgments and public policy decisions. (For critiques of the use of risk assessment in setting priorities in environmental management programs, see Commoner, 1992; O'Brien, 1991; and Habicht, 1992.) Experience in the United States has demonstrated that health experts and community members frequently have different perceptions of risk. The community may be most concerned about problems that, in the view of the experts, are least important in terms of health risk. Neither the experts nor the community are "correct" in these circumstances: objective truth—i.e., which conditions pose the greatest risk—is not knowable, and different definitions of risk may have equal validity. The procedures experts use to estimate health risk are important. People who are exposed to a variety of risks have opinions about which are acceptable and which are not, and their opinions should be regarded with respect, even though they may be based on criteria that differ from those of the experts.

To be successful, a community-based environmental planning process must deal directly with the tension between priorities as perceived by community members and the "official" or "formal" view articulated by technical experts. In the last several years, practitioners in the United States have experimented with various ways of using risk assessment as an input to public, democratic decision-making processes. In the most successful efforts, community representatives have been included on the risk assessment teams and a substantial amount of energy has been devoted to explaining the results of risk assessment studies to all members of the affected communities (Minard, Jones, and Paterson, 1993). The CIMEP model is designed to build on this trend by involving communities directly in conducting risk assessments and by using the results of the assessments as an input to a democratic, community-based process for setting priorities and taking action. The CIMEP model incorporates ongoing discussions between the community and the experts so that differences between their views are minimized when the final priorities are set by the EMC.

Since 1990, a number of social and behavioral scientists have been examining how risk perception is related to actions that can reduce threats to the environment and to health (Kottack and Costa, 1993). The central finding from this research is that risk perception emerges (or lags) in the changes that take place in each neighborhood. Each neighborhood faces different types of environmental hazards and different degrees of environmental risk. Likewise, each neighborhood depends on external (national and international) markets and conditions for its survival and is exposed to mass media and communications in different ways.

The process used in the field investigations in the CIMEP model places strong emphasis on analyzing a community's environmental perceptions, the cultural model on which the community is based, and the impact that the actions of community members have on health. Different cultures have different definitions of "health," "cleanliness," and the like. The peri-urban poor are often subjected to shifting or changing environmental conditions. With these changes come new perceptions about health risks.

Involving NGOs in field investigations and analysis of data collected provides a basis for a culturally appropriate assessment of environmental hazards and risks.

3.6 Using the CIMEP Model to Develop New Projects

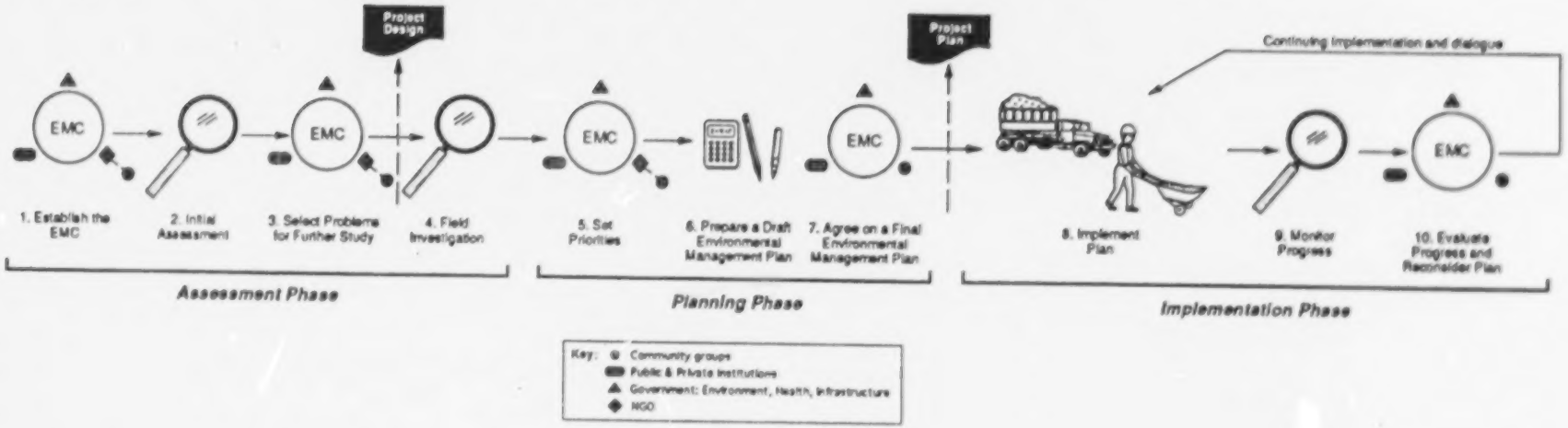
International development assistance agencies are using community participation more and more frequently in developing new technical assistance projects. It makes sense to interact with the potential beneficiaries of a new project in the planning stages. From such interaction, planners can find out if project interventions are actually desired and if they are in line with the community's resources, capabilities, and needs.

Development assistance agencies can use the CIMEP model to obtain input from peri-urban communities in the planning stages of an assistance grant or loan focused on urban environmental management. As shown in Figure 3, the information can be generated in two ways, which differ according to the level of detail and the amount of community involvement. The first way is to conduct steps one, two, and three to develop a project design. Recall that in an initial assessment, technical advisors develop profiles of the communities in which the project will operate. These profiles are more intensive than those produced by most project design teams, and the information they provide can help ensure that the project will meet some of the needs of peri-urban residents.

Although conducting an initial assessment is a good start, it does not involve the community in a meaningful way. Continuing the CIMEP process through step seven engages representatives from community, government, and industries/institutions directly in the development of a project plan. The development assistance agency sponsors the preparation of an Environmental Management Plan using the CIMEP process and then designs its assistance project to support implementation of the plan.

The second approach makes it more likely than the first that the project will meet the real needs of the beneficiaries and that they will feel that they have a stake in its actions and results. Involving project beneficiaries in project planning is the best approach to building sustainable urban environmental management programs.

Figure 3. Using the CIMEP Model in Project Development



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4

TECHNICAL METHODS FOR ASSESSMENT AND PLANNING

4.1 Overview

All the methods for implementing the technical processes of CIMEP that are described in this chapter have been proven in other contexts. Many have been developed or applied in tasks performed by the WASH Project (and later by the Environmental Health Project) and are summarized in this chapter in text boxes with accompanying references. (Also, experience using the CIMEP model in Tunisia is described in the Preface.)

The methods are presented phase by phase, beginning with the four community profiles of the initial assessment (social, political, economic and financial, and environmental), moving on to methods for the field investigation, and concluding with methods for developing an Environmental Management Plan.

4.2 Methods for the Initial Assessment

In step two of the CIMEP model, the technical advisors and NGO representatives develop four initial assessments, or profiles, of the community with which they are beginning to work. To complete the profiles, they interview public officials, community representatives, and others; review official documents; and observe the community directly. The following section explains the types of information that are collected.

4.2.1 Community Social Profile

The basic social profile is a demographic description of the community and of the city or district in which it is located, using data on birth and death rates, migration rates and patterns, and population distributions by age, sex, ethnicity, religion, and level of education. It also includes a summary characterization of social relations between major groups, and, most important, a detailed examination of social roles and relationships within a small sample of people, which attempts to find answers to questions such as: What roles do men, women, and children have in resource use and waste disposal? How much time is allocated to these roles? How much time do adult men and women have to take on new responsibilities? How many people live in the typical household? Who teaches and supervises children? Who are the marginalized members of the community?

4.2.2. Community Political Profile

The political profile explains who makes decisions that affect the whole community. The following and other similar questions might be asked in compiling a political profile: Who decides to approach the government for additional or improved municipal services? Who are the leaders of the ethnic groups in the neighborhood? Do political parties have representatives in the communities? If so, who are they? Who are the traditional religious leaders, and do they belong to a larger organization that includes representatives from many neighborhoods? Are there women leaders? Women's organizations? How do traditional and political leaders interact in a community? What decision-making processes are used in the community? How do people feel about them? For example, if the community has ever asked the government for a road, school, or other service, how did the community make the decision to approach the authorities, who actually made the contact, and what was the outcome of the action?

4.2.3 Community Economic and Financial Profile

The economic and financial profile outlines the financial resources available to the community (including private and public funds) and the community's effective demand for improvements to infrastructure and services. In other words, it is a rough approximation of the community's ability and willingness to pay for improvements. It should also identify other demands on financial resources available to the community that may complement or compete with demands for improving environmental conditions and services.

4.2.4 Community Environmental Health Profile

The environmental health profile identifies environmental conditions that community members, public officials, and other key informants perceive as potential or actual public health threats, including present or past activities and pollution sources. The profile also lists the environmental monitoring information, commercial production records, health records, and other relevant secondary data that are available.

To identify known public health problems, the technical advisors and NGO representatives should ask community members and local health professionals what the community's most critical health problems are and which are or may be related to environmental conditions. It is also important to find out how receptive the local and central governments are to taking action on environmental health problems.

Technical advisors and NGO representatives should talk to the municipal service agencies and community representatives to determine the status of environmental services (e.g., water, sanitation, garbage pick-up, vector control). They should find out what services are provided, how they are organized and paid for, what proportion of the population is served, and what plans exist, if any, to extend or improve service.

Box 4: Initial Assessment

Six years into the implementation of CARE's Moyamba Project in Sierra Leone, new water and sanitation infrastructure was deteriorating quickly and being abandoned soon after construction. The project staff's efforts to promote community participation were not effective. CARE/Sierra Leone asked the WASH Project for help to improve the situation.

WASH consultants formed an interdisciplinary team including staff from the CARE project and from the national ministries responsible for the construction, community participation, and health education aspects of the project. The team met for five days to develop assessment guides and learn how to use them. Early in this process, CARE and ministry staff recognized that they had focused most of their attention on formal leaders—namely, the politically appointed chief—and had totally ignored informal leaders whose authority derived from their traditional roles in the community. The team then used the assessment guides to develop social, political, and health profiles of the communities in which they were working.

The social profile indicated a predominance of Moslems, which suggested that only female project staff could gain access to women in their households. This prompted a more serious effort at recruiting, training, and providing appropriate support to women on the project staff.

The political profile showed that real decisions were made by men and women with traditional authority. This made it clear that staff should involve these leaders in the project to obtain effective participation from the community.

The health profile indicated that the misuse and non-use of sanitation facilities was due to religious beliefs, which dictated that people use water to clean themselves after defecating. Using water for cleansing was technically incompatible with the design of the VIP (Ventilated Improved Pit) latrines being built in the community.

The various profiles also showed that the most effective mode of communication was theater groups, rather than radio.

These findings were used to redesign the project. After only one year, the frequency of system breakdowns had been reduced by 60 percent.

For Further Guidance

Yacoob, May, et al. 1987. *CARE/Sierra Leone Community Participation Assessment*. WASH Field Report No. 217. (Annexes include field assessment tools and training materials for using community theater.)

Appendices F & G, "Basic Community Survey" and "Methodology for Data Collection with the Community," in Yacoob, May, and Philip Roark. 1990. *Tech Pack: Steps for Implementing Rural Water Supply and Sanitation Projects*. WASH Technical Report No. 62.

4.3 Methods for the Field Investigation

4.3.1 The Unique Feature of These Methods

The field investigation consists of two detailed assessments: an environmental health assessment and an environmental management assessment. They are applied in a unique way in the context of the CIMEP model.

- Local participants in the CIMEP process (government representatives, community representatives, and local technical resource people) are involved in the assessments to the maximum extent possible. They help determine the scope of the assessments and collect, evaluate, and draw conclusions from data. One of the most important roles of the technical advisors and the NGO representatives in a CIMEP project is to train local people to participate effectively and meaningfully in the field investigation.
- Ethnographic research techniques—focus groups, key informant interviews, and structured observation—are used as a principal means of collecting data. Primary qualitative ethnographic data are used to supplement and help interpret the quantitative data used to measure environmental quality, public health status, and the community's effective demand for improvements.

4.3.2 Environmental Health Assessment

General Description. An environmental health assessment estimates the risk of adverse health effects that community residents bear because of their exposure to harmful environmental conditions. The results are used to identify the most serious environmental health problems in a particular community. It is a systematic evaluation in as much detail as possible of environmental hazards, routes of exposures to humans, the probability of toxic effects attributable to such exposure based on toxicological principles, and any observed patterns of disease or adverse health outcomes already evident in the community. Conducting it as a participatory process helps educate the community regarding the links between environmental conditions and health and begins the crucial process of risk communication. An environmental health assessment integrates three approaches to investigating public health problems: health risk assessment; health effects (outcome) assessment, and ethnographic investigation of health-related behavior.

The assessment uses existing (secondary) data on environmental quality and the occurrence of environmentally related diseases, as well as original (primary) data collected by the field study team in ethnographic and epidemiologic investigations.

Consistent with current usage in USAID and the World Health Organization, "environmental health" is defined broadly, to include public health problems associated with water supply,

Box 5: Environmental Health Assessment

A five-person interdisciplinary team of consultants from WASH and PRITECH (Technology for Primary Health Care)—including experts in risk assessment, health, urban planning and policy, economics, and anthropology—developed an experimental method and then spent three weeks in Quito, Ecuador, in May 1992, where they applied it. WASH examined the public health impacts of problems in water supply, sanitation, solid waste management, wastewater management, and food hygiene; PRITECH examined those related to occupational health, injury control, air pollution, and toxic and hazardous substances.

The project incorporated three research approaches: comparative health risk assessment (an environmental science approach), health effects assessment (grounded in epidemiology and public health, and an ethnographic investigation (used by anthropologists and social scientists) of health-related behaviors.

The ethnographic research made it possible for the risk assessment to incorporate culturally rich information which changed the direction of the project. Sixty women from three peri-urban communities surrounding Quito participated in group interviews focused on behaviors and practices related to environmental health.

The words of the women gave researchers input into their assessment. Furthermore, the approach recognized women as members of the community and confirmed their rightful role in the generation of meaningful knowledge.

For Further Guidance

Methodology—Brantly, Eugene, et al. 1993. *Environmental Health Assessment: An Integrated Methodology for Rating Environmental Health Problems*. WASH Technical Report No. 436.

Application—Arcia, Gustavo, et al. 1993. *Environmental Health Assessment: A Case Study Conducted in the City of Quito and the county of Pedro Moncayo, Ecuador*. WASH Field Report No. 401.

sanitation, municipal and industrial wastewater, solid waste, vector-borne diseases, food hygiene, air pollution (ambient and indoor), occupational health, toxic and hazardous materials, and traffic and household injuries.

Community Participation in the Environmental Health Assessment. Community involvement in the environmental health assessment is crucial to the success of the CIMEP model because it helps people become more aware of environmental health problems in their community and more knowledgeable about the causal linkages between particular environmental conditions and their health consequences. Selected members of the community who help conduct the assessment will later become focal points for the risk communication process, opening up a dialogue with other members of the community on the environmental health risks they are subjected to.

Community involvement in environmental health assessments is sometimes called "barefoot epidemiology" (Brown and Clapp, 1991, and Baltz, 1991). Adjusted for application in developing countries, this approach is carried out in three steps:

- (1) *Selection of participants.* Community members with a high level of interest in environmental conditions or caring for the sick should be selected; for example, health care professionals or parents (usually mothers) of children who have suffered environmentally related illnesses. Experience has shown that lay people without special expertise in health or science can be trained to collect data for methodologically proper and rigorous epidemiologic investigations. In the United States, mothers' groups have proved themselves capable of reporting the number of cases of specified diseases to district-level health officers and collecting associated qualitative data. Local chiefs in remote areas of Nigeria have successfully carried out Guinea worm surveillance by providing information on the numbers of cases to truck drivers, who subsequently report the information to health officials (Brieger, 1991; see also Sallis and Moser, 1991).

- (2) *Agreement on terminology.* Before the barefoot epidemiologists can go to work, they and the technical advisors and NGO representatives must develop mutually understood categories of symptoms, diseases, and injuries that will be used in interviews to determine the health status of community members. The trained epidemiologist leading this portion of the assessment should consult extensively with community members to determine how they perceive and categorize various symptoms and diseases, how they attribute this health effect to that case, and what terms they use. The categories and the terms must represent a usable compromise between the epidemiologist and the community.

  The terms used for diseases can create major problems in developing surveillance instruments. Translation from a national language into a local dialect is fraught with problems. There may be more than one local word for certain clinically defined diseases, and one local word may denote a disease concept which has a broader scope than is accepted in Western clinical medicine. Examples of the former can be found in Honduras and India, where mothers often perceive several folk illnesses as having diarrhea-like symptoms. An example of the latter may be found in Nigeria, where the Yoruba word "iba" can be translated as "malaria" but also includes diseases causing jaundice and related symptoms (Ramakrishna, Brieger, and Adeniyi, 1988-89). Pictures and videotapes may be particularly useful in building a common language.

- (3) *Data Collection.* When agreement on terminology has been reached, the community "epidemiologists" collect data on environmental conditions, routes of exposure, the occurrence of environmentally related diseases and injuries, and the locations in which people with such health problems live and work. The investigation should use rapid epidemiologic assessment techniques developed in the past decade involving small area sampling and statistical methods directly applicable to measuring environmental exposures. An example of such a technique involved collection of information on 275 cases of children under two with diarrhea seen at clinics in an area of the Philippines over a five-month period and comparing this to 381 controls from the same clinics (Baltazar

Box 6: Training Stakeholders to Collect Data

Government health education officers in many countries have very little contact with the public. Their principal functions are to manage programs and solve bureaucratic problems, and their performance is measured by the amount of information distributed through various media (TV, radio, posters, etc.). The WASH Project has worked to improve the effectiveness of health education programs by training health education officers to identify high risk behaviors in direct field observations, form community-level health committees, conduct focus groups, and teach people on local committees how to identify and monitor high-risk behaviors.

In Belize, district-level health officers discovered through their own observations that they needed different strategies for dealing with water/sanitation issues and malaria. Through their observations, government officers also determined that people were using oil-based leaded paint on water storage vats in their rainwater catchment systems, resulting in exposure to lead through drinking water.

In Haiti, NGO staff were trained to observe behavior and develop a behavior-based approach to hygiene education. They were surprised to learn from their observations that many project beneficiaries added lemon or lime juice to water, believing that this practice made the water potable.

In Guatemala, staff on a CARE water and sanitation project were trained to track the effectiveness of their health education work by monitoring the frequency of specific behaviors related to personal and domestic hygiene, latrine use and maintenance, and oral rehydration therapy. The emphasis on direct observation of behavior grows out of recent research that has found that measures of health knowledge and attitudes alone are not accurate indicators of change in actual health practices.

For Further Guidance

Yacoob, May, et al. 1991. *Improved Productivity Through Better Health (IPTBH) Project Assessment*. WASH Field Report No. 356.

Di Prete Brown, L., and E. Hurtado. 1992. *Development of a Behavior-Based Monitoring System for the Health Education Component of the Rural Water and Health Project, CARE/Guatemala*. WASH Field Report No. 364.

Frelick, G.; L. Jennings; and P. Haggerty. 1993. *Preparation for Conducting a Second Training of Trainers Workshop and Producing a Training Guide for the Development of a Hygiene Education Program*. WASH Field Report No. 417.

and Solon, 1989). Community residents or clinic staff can be recruited to collect the interview data in such studies. This approach to studying causes of disease is well-established in the field of epidemiology and public health and can be implemented by academically based investigators in many developing countries. Quantitative data may be obtained from official statistics and from original measurements; qualitative data are collected through interviews, focus groups, and observation. Observation can verify the accuracy of information obtained in other ways and the meaning of terms used by the community. For example, in a community survey in Bangladesh, most people responded that they used only water drawn from handpumps for "drinking." However, observation

showed that contaminated water from other sources was used for cooking, washing vegetables, and filling baby bottles. The researchers included these uses within the category of "drinking" water, but the people being interviewed did not.

The exchange of information that takes place during this process builds a foundation to communicate effectively about environmental health risks. The common language developed during preparation for the environmental health assessment will be used in reporting results to the community and in structuring the priority-setting process.

4.3.3 Environmental Management Assessment

General Description. The environmental management assessment assembles detailed information on the effective demand of the community for improving environmental conditions and the organizational structure and capacity of institutions with a role in the Environmental Management Plan. Results from the environmental management assessment are used to evaluate the financial feasibility of potential interventions, allocate responsibilities for implementing aspects of the environmental management program, and identify the types of training and other support for institutional development required for the program to succeed.

Assessing Management Capability at the Community Level. The two functions of management at the community level are representing the community in the EMC and implementing community-based environmental health activities. Frequently, these functions are carried out by two separate entities or individuals. The challenge for the technical team is to ensure that the right person has the right job.

Identification of Local Management Capability. To find out what management capabilities are available locally, the technical team should call a number of meetings at the neighborhood level. Initial meetings may be held with local authorities and others responsible directly or indirectly for disposing of wastewater, for example.

During the initial meetings, the team tries to find answers to questions such as: Has the neighborhood undertaken any projects before? Have neighborhood people cleaned streets where city collection vans could not enter? Have they organized to obtain water or electricity connections? Have they built a church or mosque? Have they organized a learning center or school for neighborhood children? For each of these questions, the team should find out who made the decision to take action and how they followed through. Clearly laying out the sequence of events reveals how decisions have been made and which people have accepted responsibility for carrying them out. Answers to these questions give a clue as to who the innovators in the community are and who has contacts with organizations outside the community—such as government or NGOs.

Two types of questions should be asked to identify the specific management roles of different community members: "who" questions and "how" questions. When people are asked "who" is in charge of, for example, garbage collection, the answer is always the name of a cultural or political leader, usually a man. When people are asked "how" the garbage is collected, the answers provide

information on the more specific management roles of different members of the community. For example, young men may be responsible for taking the garbage out of the house, unmarried girls for sorting glass and other recyclables, aging parents for using recyclables, women for determining what is disposed of, and so on.

Box 7: Assessing Affordability

The monthly average "disposable" income was estimated for a sample of households by observing, among other factors, the types of food, clothing, and special commodities purchased. The user cost was calculated by estimating monthly system costs. These costs are the repayment of loan principal and interest to CARE, plus any operating costs such as spare parts and maintenance. Average monthly costs per user are obtained by dividing total costs by the number of users. This average user cost was divided by the estimated average disposable income to obtain an average household debt burden. Provided this was below the affordability parameter, then the proposal could go ahead.

A simple procedure for assessing affordability was used in WS&S projects sponsored by CARE in Indonesia and the UNDP/World Bank in Nigeria. This "methodology" assumes that if monthly user charges (when expressed as a percentage of estimated disposable income per month) are below an arbitrary percentage parameter, then the changes are "affordable." Often this percentage is taken to be in the range 5-8 percent. In Indonesia maintenance and operating costs per month were very low compared to loan repayments.

Other sources of revenue for communal projects were accounted for:

- a religious "tax" for community causes;
- community contributions from sales of local products; and
- fundraising from shows and activities.

These additional sources could be tapped to reduce user net cost to an "affordable" level.

For Further Guidance

Yacoob, May. 1990. "Community Self Financing of Water Supply and Sanitation: What are the Promises and Pitfalls?" *Health Policy and Planning*, Vol. 5, No. 4, pp. 358-366.

Judd, M. 1988. *Community Self Financing of Clean Water and Sanitation Facilities in Indonesia*. CARE/Indonesia.

Yacoob, M., et al. 1989. *Rusafiya Project: Final Report on Socio-Economic Survey*. Washington, DC: United Nations Development Program and the World Bank, NIR/87/001.

Selecting Community Representatives. Once the technical advisors and NGO representatives have ascertained where the managerial talent in the community lies, they should help select community members to represent the community on the EMC. Frequently, even though women might be very active in the community, they may not feel comfortable representing their neighborhoods on a municipal committee.

The responsibility of the technical advisor/NGO team will be to provide a clear explanation of the tasks that the EMC will need to carry out. Then people can determine what roles they feel comfortable playing. The technical advisors and NGO representatives or government officials also have a role in encouraging community members to get involved in implementing environmental activities. This means bringing to the fore those with an intimate knowledge of local resources. Having such people involved in the implementation of activities is critical to the success of environmental health initiatives.

Assessing Management Capabilities at the National Level. To be sustainable, community participation must be nurtured and supported by national and municipal institutions. Such nurturing ranges from acknowledging and encouraging community-based institutions through regular visits to conducting short technical training courses in environmental health.

To support community-based groups national and municipal institutions must be competent in several areas; these are discussed below. Assessing the level of competency is the purpose of the environmental management assessment.

First, the institution should be able to formulate and, perhaps more importantly, to implement and enforce supportive policies. Several policy areas are critical for the success of community participation:

- *Financing.* How will the environmental health interventions be financed? What will the community's responsibility be?
- *Regulations.* Are there any regulations that prohibit the formation of community organizations? Are community-based groups accepted as legal entities, that is, can they bring before a court of law members who do not fulfill their obligations?
- *Interministerial collaboration.* Are there restrictions that will make collaboration across ministries difficult? For example, can staff from the Ministry of Health use the resources of the Ministry of Infrastructure or Environment, or vice versa?

Second, the institution should be able to function as a catalyst and facilitator, not as a provider of goods and services. However, playing the provider role is more comfortable for public-sector institutions, and the public has grown to expect it. The following institutional mechanisms should be in place or should be developed over time for the government—both central and district or municipal—to support communities.

- *Using data from communities.* A planning process that uses data from client communities should be in place. While communities vary from place to place, the process of approaching the communities, collecting the data, and forming the appropriate institutions, for the most part, remains the same. This process and the rationale behind it should be clearly understood. The end result is less important than the process. In other words, the raison d'être is not the EMC per se, but the process used to form it.
- *Training and participatory processes.* Are national institutions able to support community-based activities such as implementing participatory processes, preparing training sessions,

holding policy dialogue meetings in which communities gain access to high-level policy makers, organizing information-sharing meetings for the staff of municipalities, and negotiating and coordinating resources with other relevant ministries?

- *Adequate staff and training.* All levels of the concerned ministries must have enough staff to support community-based environmental activities. This does not mean adding responsibilities to the current staff's already fully committed time. Furthermore, municipality and ministry people should be adequately trained for the jobs they are called upon to perform. It is erroneous to view community participation and other social-science activities as activities that just about anybody can carry out. If engineers or public health specialists, such as sanitarians or nurses, are involved, they may need additional training.

- *Adequate resources.* Municipal and ministry staff must have the necessary resources to cover all the neighborhoods they support. Frequently one finds that staff are given the responsibility of meeting with their client communities, but not the resources, such as gasoline for transport. This point is particularly important, for the meetings and training sessions with neighborhood communities rarely take place during office hours.

- *Monitoring systems.* Management information systems should be capable of tracking project implementation, including intermediate indicators that allow for changes to be made in the course of implementation. Most management information systems are set up to monitor end-of-project, numerical data. By the time the data has been processed, very little or nothing can be done to make meaningful changes. For example, if on-site sanitation facilities are being built but not being used, project personnel should know about it during implementation when there is still time to find out why and make adjustments. An effective management information system will track utilization and maintenance as well as infrastructure units completed and thus will require indicators different from those traditionally utilized.

4.3.4 Ethnographic Data Collection Methods

Ethnography—the field study of culturally specific behaviors, values, and social patterns—uses both qualitative and quantitative, as well as primary and secondary data. Three techniques of ethnographic research are used in environmental health and environmental management assessments: focus group research, in-depth interviews with key informants, and structured observations.

Focus Group Research. In focus group research, a representative group of people discusses a problem or issue informally with a social researcher trained to stimulate an open, thoughtful exchange of ideas. Focus groups provide useful information about recent changes and long-term trends in environmental and health conditions, a community's beliefs regarding the relationship of illnesses to environmental deterioration, and the intensity of people's feelings about environmental health problems. To use focus-group research effectively, the technical advisor must select group participants carefully, use locally known and respected assistants, design

appropriate key research questions and associated "probe" questions, choose a neutral location for group meetings, and use trained facilitators. Focus group data may be analyzed using detailed textual analysis or a more rapid review of salient issues. It is important that the facilitator and the community-based assistants participate in the data analysis. For more detailed information on organization of focus groups, see Scrimshaw and Hurtado, 1987.

Box 8: Using Ethnographic Data

People in many cultures believe that children's feces, and especially those of infants, are harmless. This belief has contributed to the continued prevalence of diseases spread by fecal-oral transfer. The handling and disposal of children's feces is a sensitive subject and is strongly influenced by cultural paradigms. Understanding actual practices requires using direct observations to collect original data, rather than relying solely on responses to interview questions.

The WASH Project conducted an ethnographic study in Kenya to determine how mothers manage children's defecation and related household sanitation practices. The study which was conducted in two communities—one Christian and the second Moslem—showed that ethnic affiliations played a greater role in influencing defecation practices than did religion. One of the recommendations arising from this study was that latrine technologies be adapted specifically for use by children.

A WASH assessment of hygiene education in Thailand, using ethnographic data, developed a strategy that used community "gate keepers," that is, professionals from within the community—such as teachers, monks, craftsmen—to reinforce behavioral messages for each group coming in contact with them.

Over the last ten years, development professionals have gained a greater appreciation of the value of ethnographic data in designing water and sanitation projects. A few years ago, it was the norm for projects to include a "hygiene behavior" component to train people, after-the-fact, in the proper use and management of improved water sources and newly installed latrines. In recent years, however, information on human behavior—in hygiene practices, technology preference, ability to pay, and time available for maintenance—has been used as a basic building block for designing infrastructure improvements. The WASH Training Manual on Latrine Construction, which a decade ago focused primarily on technologies, has been revised to incorporate this methodology and has been proven effective in the field.

For Further Guidance

Shelley, K., and D. Omambia. 1987. *Enhancing Child Survival through Improved Household Sanitation Strategies*. WASH Working Paper No. 47.

Gavin, J.; T. Hockley; and S. Joyce. 1993. *Community Sanitation Improvements and Latrine Construction Program*. WASH Technical Report No. 83.

Simpson-Hebert, M. 1987. *Hygiene Education Strategies for Region 1 for the Ministry of Public Health in Thailand*. WASH Field Report No. 210.

In-Depth Key Informant Interviews. Interviews with key informants supplement and flesh out information obtained and issues raised in focus groups. In-depth interviews may take several hours or multiple visits. The interviewer documents all relevant information carefully by topic. Key informants can also validate information from other sources.

Structured Observations. First-hand, visual observation provides information not available otherwise or a necessary reliability check on information gathered by other techniques. Through observation, information on environmental conditions; (e.g., the location and condition of water sources and waste disposal facilities) or on people's behavior that results in exposure to environmental hazards (e.g., food purchasing, preparation, and storage, or household hygiene practices) may be collected. For example, observations may reveal that, although the drinking water provided by a city is quite safe, people are also drinking rainwater from catchments that are contaminated with chemical and biological wastes. In some cases, observations may be used to develop quantitative time-activity patterns needed to estimate exposure (e.g., how much time does a child spend on an average day in various indoor and outdoor environments?).

4.4 Methods for Developing an Environmental Management Plan

4.4.1 Overview and Purpose

The Environmental Management Plan is the document in which representatives of the local government and the community record the results of their work together. When a city-wide environmental management plan is being developed, each agreement with a particular peri-urban community should be documented as an appendix or attachment. The agreement between the city and each community should address three topics.

- *Results and conclusions from the field investigation.* The existing environmental conditions in the community should be described and the highest priority problems identified.
- *The process the city and community will use to continue their dialogue.* The description of this process should include agreements regarding the community's access to information, its role in monitoring the implementation of the plan, its access to local officials, and the process by which it can provide input to relevant government decisions.
- *Actions that the city and the community have agreed to take to improve environmental conditions in the community.* Many types of actions might be included. For example, the community might commit to organizing a block collection program for solid waste and the city to providing hand trucks, garbage bins, and bi-weekly pick-ups at a central collection point. Or a community might agree to keep its members from erecting dwellings on highly unstable tracts of land and the city to provide and service improved sanitation facilities in return. The community and city might also agree to work together to examine ways to reduce the impact of external sources of pollution (such as industry)

on the community through improvements in infrastructure, changes in the behavior of residents, and revisions in local and national regulations.

It is a city government's duty to consider the economic feasibility of proposed new services and infrastructure; therefore, the government will probably not be able to commit itself to providing new services or facilities in its discussions with each community. The city may require a longer period to examine needs in several communities and to schedule improvements that affect a larger geographic area. Nonetheless, the agreement with a particular community should, when appropriate, commit the city to establishing a process of continued dialogue about the need for improved services to the community.

The plan, which might be thought of as a guideline for the national government on how to support CIMEP, should also include a system to monitor behavioral changes. For example, if the project focuses on solid waste in a community where children are generally responsible for taking out the garbage, then the monitoring indicator will be the number of households that have acquired collection bins low enough so that children can dump the garbage into them. Another indicator could be the number of households separating recyclables, or the number of families composting. The monitoring system should provide a way for feedback to be given immediately to households not exhibiting the desired behavior and should concentrate on finding out why some households are not making the hoped-for changes. In other words, behavioral indicators should allow community-based environmental health teams to monitor changes and take corrective action. Such a monitoring system is more appropriate than epidemiological surveillance, which depends solely on the skills of the epidemiologists, or than a system using numerical targets—for example, the numbers of bins given to a neighborhood. Such targets lend themselves primarily to end-of-activity formal evaluation.

4.4.2 Preparation

The Environmental Management Plan should be formulated either in a workshop or through a series of meetings in which portions are drafted and then eventually brought together in a meeting of the EMC.

If the plan is to be formulated in a workshop, it should be done within a basic framework that answers the questions: what, when, and who. Three columns on a flip chart or a time line will suffice. If the plan is being assembled in the EMC, a lead person and institution should step forward and offer to become the driving force in the processes of implementation.

During preparation of the plan, the technical advisors facilitate the process and ask probing questions to make certain that all aspects of implementation are covered. Some questions that might be asked are listed below.

- Does the plan lead plausibly to the development of community-based environmental health institutions?
- Does the plan establish a regular procedure for collection of data on disease prevalence?

- Does the plan explicitly address the various symptoms and disease categories that community people understand?
- Does the plan provide for regular meetings of government representatives to review implementation issues as they arise?

4.4.3 Institutional Requirements

The implementation of an environmental management plan frequently requires some modification of the institutions involved. At a minimum, the institution must be able to provide three kinds of support, if the plan is to be successfully implemented.

- A contact person must be available throughout implementation. This person should also have some technical responsibilities.
- Financial resources must be available. Donor or implementing agencies might place a lump sum with a lead ministry to be drawn against by the communities as various tasks take place.
- Some mechanism must be established to continue community-based environmental health planning.

As mentioned earlier, the Environmental Management Plan is not the end product but the beginning of a process that should be carried on even as implementation progresses. For example, a cadre of trainers from within the different ministries at the district or regional level could be formed to continue the process. This was the approach adopted in Belize, where district-level Environmental Health Teams worked in a training capacity as they set up community-based environmental health committees. Another approach might be to designate a national NGO as a training consultant to carry on the planning with the established management team. Or a local or international consulting firm or the staff of a university might play a similar role, perhaps providing a neutral perspective to the consensus-building process.

5

COMMUNITY PARTICIPATION ACTIVITIES IN CIMEP

5.1 Overview

5.1.1 Roles and Responsibilities

Chapter 4 described the methods used in the technical process of carrying out an assessment and developing a plan. This chapter describes the community participation activities that take place concurrently. Unlike the technical process, community participation activities do not unfold in a clear, linear sequence, but come into play at each stage—assessment, planning, and implementation.

Five groups are involved in the process: (1) technical advisors, (2) NGO representatives, (3) community representatives, and representatives from (4) local government and, when appropriate, (5) local industry. Each of these groups has a role to play and all but the technical advisors must acquire specific skills to support a CIMEP program.

It generally takes more time and effort to carry out the community participation process than the technical process of developing the Environmental Management Plan. People change their behavior gradually and in stages. Building effective community participation is a developmental process during which attention must be paid to cultural and social norms. The methods used change during the course of a CIMEP effort, as illustrated in Figure 4, with technical advisors transferring skills and responsibilities to NGO representatives and local government and, where appropriate, local industry. Community leaders emerge gradually and more responsibility is shared among all the national actors participating in the process.

During the assessment phase, work with the community consists primarily of sharing information, and community education is carried out by NGO representatives and, possibly, government officials. Then, the technical advisors train NGO representatives, municipal officials, and, if available at this point, community leaders to collect and evaluate data. After data collection, the NGO representatives and community leaders help the community define its priorities and create a vision of what it wants to achieve with respect to environmental health issues. These tasks call for strong group process skills. Later, during the implementation stage, the NGO and municipal staff train community representatives in technical and advocacy skills so that they can participate with government representatives in implementing an Environmental Management Plan. During the preparation of such plans, the NGO and technical advisors, together with community representatives, develop a clear understanding of the role of community representatives as trainers for their communities in behavioral changes and of the time commitments necessary for training as well as implementation of the plan. Finally, during the

implementation phase, the NGO continues to work with community leaders to represent the community in an advocacy role vis-à-vis the government and to maintain community involvement and cohesion around the CIMEP program.

5.1.2 Goals and Objectives of Community Involvement

In the CIMEP model, community involvement is viewed both as an internal and external function. It improves the ability of community representatives to relate to government representatives responsible for water and sanitation services and to develop their negotiating, advocacy, and managerial skills. It gives a voice in the consultative process to those affected by environmental health conditions. Their perceptions of risk and health causality, their knowledge of their environment, and their resources to address these issues are brought into the discussion.

In this model, participation is not an end in itself. It is not the development of democratic institutions, although democratic institutions may be strengthened through application of the model. Community involvement is a means to an end, the end being a plan for addressing the environmental health conditions of a municipality. The CIMEP model is based on the conviction that an Environmental Management Plan developed in a participatory manner, with consultative processes among all relevant decision makers and actors, will be a strong plan and will be congruent with local-level realities.

5.1.3 Underlying Premises

The CIMEP approach is built on two fundamental premises concerning participation. The first is that prospective beneficiaries and stakeholders can be directly involved in decision-making on planning and implementation, with technical solutions adapted through a consultative process focusing entirely on the specifics, i.e., water and sanitation services perceived necessary by them. The second is that the poor—just like the rich—can evaluate their options and can learn basic process skills that will empower them to act as market surrogates for facilitating information between municipal staff and users.

5.1.4 Identifying the "Community"

One of the most important principles for promoting community participation is not to assume the existence of a functioning community. Technical advisors often hope to identify a natural, existing unit of social cooperation. Those who have worked in rural contexts should be cautious in transferring their preconceptions about communities to urban areas. In rural areas with agricultural economies, neighbors may exchange labor and share equipment because they face common problems and have similar skills. In an urban context, it is much less likely that neighbors are involved in the same economic activity, and circumstances may not predispose them to work together. To succeed, the CIMEP process must help people recognize that it is in their

Figure 4

Community Participation Activities in the CIMEP Model

	Assessment Phase		Planning Phase		Implementation Phase	
	■ Form EMC ■ Initial Assessment	■ Select Problems ■ Field Investigation	■ Setting Priorities	■ Environmental Management Plan	■ Implement Environmental Management Plan	■ Monitor Progress ■ Refine Plan
Public Participation Inputs	■ Information sharing	■ Community education (NGO data collection)	■ Workshops visioning and defining priorities ■ Neighborhood representatives identified	■ Develop Management Plan	■ Consensus building for approach taken	■ Training of trainers ■ Policy review meetings ■ Specific technical inputs
Public Participation Outputs	■ Open dialogue ■ Create awareness	■ NGO collecting risk data	■ Vision and action plans developed ■ Open and direct dialogue with neighborhood representatives	■ Formation of people/neighborhood interest groups	■ Implementation plan with clear and agreed upon roles and responsibilities	■ Community groups □ advocate for change □ monitor progress □ discuss □ negotiate with government and industry □ facilitate
Methodology	■ Environmental scan (super rapid assessment) ■ Focus/ad hoc groups ■ Selected individual interviews ■ General observation ■ Secondary data	■ More methodologically sound selection of focus groups ■ Structured observation for estimating exposure and risk ■ Barefoot/popular epidemiology ■ Modified willingness to pay	■ Facilitation of visioning workshop ■ Questioning and observation for assessing time availability and resources	■ Political/social/review information to ensure appropriate and wide representation ■ Training on roles/responsibilities of community interest groups	■ Dialogue/review, adjust and make changes ■ Arrive at consensus	■ Training of trainers ■ Workshop design

common interest to improve environmental conditions and create effective mechanisms for joint decision-making and representation. This is done in the process of creating community capability in "barefoot epidemiology" and in assessing risk. Gaining access to an urban community is generally difficult. Particularly in the poor and undeserved communities in peri-urban areas, there is often a "culture of silence"—a passive resistance to outside intervention. It may be especially difficult to identify those who are sick or handicapped or to make contact with women and children. Frequently, people (especially adult women) who stay indoors need most to have a voice in the process.

5.1.5 Dealing with Obstacles

When methods for promoting community participation are successful, they give those who were previously voiceless a voice in making decisions that affect the community. Giving power to those who have had none can be threatening to others, including those who exercise political power and other powerless groups who may fear being harmed by their rivals. Thus, while participatory methods are empowering, they can also create political and social tension. Members of the community will generally understand how far they can push their growing influence without creating resistance that prevents further progress. Technical advisors and NGO representatives should heed their advice in this regard.

5.2 Special Roles of the NGO

Of the five groups involved in CIMEP, only the NGO representatives play a dual role. At first they function as a surrogate for community leaders until such leaders emerge, representing the community before the local EMC. After community members emerge, they play a supporting role as trainers and facilitators, gradually supplanting the technical advisors.

Because the NGO role is complicated and pivotal, selecting the right NGO is key. Development officials or technical advisors should identify an appropriate NGO in the initial planning for a CIMEP effort. The appropriate NGO will have demonstrated an interest in and an understanding of environment and health and will have established political loyalties in the project communities. Such connections will clearly facilitate the NGO's ability to assess the most appropriate community-based management representative. However, because the NGO functions as an intermediary between local neighborhoods and national-level policymakers in the EMC, it should not be affiliated with any political grouping. It is helpful if the NGO has a national focus and agenda, so that applying the model in several cities is consistent with its mission.

In CIMEP, the NGO representatives bear the primary responsibility for interacting with the community, representing its interests, and training its leaders and members during the assessment and planning phases. The technical advisors generally do not interact directly with the community; rather, they work through the NGO representatives, whom they train in all the skills they need to develop plans, implement the CIMEP model, and provide on-the-job support. This approach promotes sustainability: when the NGO representatives have applied the model in one

or two communities, they can go on to apply it in others with much less technical support. (As noted earlier, in some circumstances, municipal or regional government personnel will fulfill the roles generally ascribed to an NGO; for example, when an appropriate NGO does not exist, when the municipal government objects to NGO involvement, or when government personnel have direct access to communities.)

The following are the basic community participation activities carried out by the NGO:

- *Making contact with the community.* First the NGO meets with community leaders and obtains permission to work there; later it makes contact with community members and existing groups.
- *Managing the participation of the community in data collection.* People living or working in the community (such as teachers, students, mothers, etc.) are identified and asked to arrange and conduct data-collecting interviews, focus groups, and field observations and to supervise the compilation and analysis of data.
- *Transferring technical and leadership skills to community representatives.* Training, collaborative work, and mentoring are the methods used here.

Because NGO representatives are not expected to have all of the skills required to fulfill these roles at the beginning of a CIMEP effort, they have to be trained. The technical advisors provide the training in three categories:

- *Technical skills* for conducting the initial assessment, field investigation, and setting priorities, including how to collect and evaluate quantitative and qualitative information.
- *Group process and leadership skills* for holding community meetings to gather information, consider options, and make decisions.
- *Training and mentoring skills* that will enable the NGO representatives to pass on their technical and group process skills to community representatives.

5.3 Working with Local and National Governments

A community's effort to participate in environmental management will be sustainable only if it has the support of government. The CIMEP model is designed to create an on-going dialogue between local government and community representatives. Although local government officials usually want cooperation from citizens, often they do not have the skills or experience required to work with community groups. Maintaining a dialogue with communities requires special communication and group process skills, as well as a willingness to share information and keep decision-making processes open.

The success of a CIMEP effort depends in large part on the amount of attention that technical advisors and NGO representatives give to creating communication channels between the local government and communities. Responsible government officials need training in group process

skills, and participants from both sides—community and government—need to establish norms for conducting meetings and sharing information and authority. The advisors must provide training and other assistance in a manner that helps officials develop new skills without compromising their public image. Public officials may also have to take actions to grant community organizations the authority and capability to participate in environmental management activities. For example, officials may need to provide legal authority for community organizations to collect money and make financial commitments, or they may need to help community organizations obtain financing for their activities.

5.4 Helping Community Institutions to Emerge and Grow

Frequently, local-level management tends to be a forum for powerful and influential community members, allowing little chance for input from those actually responsible for tasks and behaviors that contribute to poor environmental health conditions. During the CIMEP process, a better understanding can be gained as to who has direct responsibilities for environmental pollution. The process of negotiating a place for the contributions of minorities and the disenfranchised is, in itself, a contribution to the long-term sustainability of environmental health interventions.

The implementation, continued management, and proper utilization of infrastructure for environmental health improvements depend on the ability of local-level institutions to manage, i.e., control, own, and run infrastructure improvements. Local-level institutions are also the front-line linkage to sources outside the community. The training of local-level institutions in management skills is the first step required to empower such groups at the local level.

5.5 Types of Activities Involving the Community

Four types of community activities take place in the CIMEP model: information sharing, data collection and evaluation, consultation, and decision-making. They are listed roughly in the order in which they are introduced; however, they are more nearly cumulative than sequential. That is to say, information sharing, for example, is not a step or a phase, it is an activity that, once introduced, is ongoing.

5.5.1 Information Sharing

During the information-sharing process, the technical staff of the implementing agency or municipality describes the proposed infrastructure and explains its design, the implications for local-level maintenance, and the time and financial implications of investments. This gives the community an opportunity to suggest changes in the design and management arrangements. It is an open process of negotiations where decisions are recorded and responsibilities delineated.

The information-sharing process can also lead to the formulation of legal and other control mechanisms that will actually be implemented (rather than just remaining on the books). There

is no doubt that this process can end in conflict and broken off negotiations. But it is worth the risk, since the alternative may be, for example, water and sanitation services that no one wants, no one uses, and no one maintains and pays for.

To continue the water and sanitation example, this process of information sharing reduces the scope for exploitative behavior by government representatives. Such exploitative behavior might be lower quality materials, charges that are imposed after the fact, and commitments made without community-level partners understanding implications down the line. Furthermore, as the planning process moves to implementation, information sharing can reveal a much broader range of operations and maintenance options, not excluding such options as contracting with municipal utilities to provide operations and maintenance functions.

5.5.2 Data Gathering/Community Education

Community members are involved in gathering data so that infrastructure inputs will be more sustainable. In the course of developing CIMEP plans, the NGO works with selected community members in collecting data on environmental pollution and people with symptoms resulting from such conditions. This information is initially used for the development of municipal CIMEP plans. Because the information is not used directly in the neighborhood, community people are paid for collecting it. Later on, when the plans are implemented, data gathering and monitoring environmental conditions are placed in the hands of community people. The initial assessment and field investigation should be conducted in a manner that fosters community interest and discussion. Using focus groups to gather information for the community profiles encourages people to describe their problems, articulate their needs, and then discuss these topics among themselves. Through the use of maps and inspection with knowledgeable community residents, data collectors locate and evaluate landfills, water sources, solid waste collection points, local industrialized plants, and other environmental conditions.

Selected individuals from the community should be trained in tasks such as canvassing households to identify people with specific illnesses and injuries or evaluating data to identify serious environmental hazards. In numerous projects, teachers, high school students, and mothers have carried out such tasks effectively when they have been given appropriate training and compensation. Training should clearly explain the reasoning behind each step in data collection, including how the data will be used to improve environmental conditions in the community. Trainees should have a chance to apply the data collection methods under field conditions.

5.5.3 Consultative Process/Workshops

When the process of setting priorities begins, dialogue with the community takes place through the more formal process of open community meetings to discuss the results of the investigations. NGO representatives and others involved in data collection—the technical advisors and government representatives—describe the conditions they found and the possible impacts such conditions may have on the health of community members, providing enough detail, repetition,

and clarification to make sure the community grasps the information. This process of "risk communication" is designed to promote extensive dialogue within the community, leading to a recognition that cooperation in solving common problems is in everyone's interest. In the United States, similar processes have bolstered cohesiveness in communities of people with otherwise divergent interests.

As plans are being drawn up, the technical team is responsible for ensuring that the approach is demand-based. Local-level managers within the communities are identified, consulted, and brought into the consultative process, which essentially uses a mix of those with knowledge, those with power, and those with problems.

Different ministries and stakeholders are brought together in the consultative process, for addressing environmental health in a sustainable manner involves a number of areas. No one ministry alone can do it. A team must be created from among a number of senior officials from ministries and departments that have little to do with one another. This team is not created in a single meeting, but after the individuals have worked together a number of times—long enough to develop some trust and to be able to communicate—the team may come into being.

Arriving at a common goal, as expressed in the visioning meetings, creates a recognition that the vision of environmental health can be realized only when different stakeholders work together. In addition, the consultative meetings, conducted in a facilitated manner, are modeled behavior which the participants in the consultative group learn to imitate.

Meeting together on a regular basis with policymakers and with municipality-wide technical staff, participants acquire the skills and the opportunities to open up communication for system-wide problem solving. Each of the workshops builds skills and develops values around participation. Participants are able to express the day-to-day problems that hinder them in carrying out their work, formulating plans, and communicating effectively with national-level policymakers. Over the course of developing municipality-wide plans, a level of trust and commitment is developed. The skills gained in reaching policymakers and making presentations to them build the very essence of empowerment and advocacy.

5.5.4 Decision-Making Processes

After extensive consultation, the next step is to build a community-wide, democratic decision-making process on the foundation of the existing dialogue, interest, and concern. Such a process may already exist in the community, or it may need to be created. Existing groups, such as block committees or health committees, may already have taken an interest in the CIMEP effort; if so, it is more effective to encourage their involvement than to advocate forming new groups. The NGO representatives provide training in group process skills to leaders of those groups to help increase their effectiveness and as an incentive for them to become involved in the CIMEP effort. As stated earlier, the community's formal decision-making structure should be in place, if possible, in time to be of use in the setting priorities step.

The community selects or authorizes one or more persons to represent it on the EMC. Once community representatives have been chosen or authorized, they take their positions on the EMC and assume the representative functions which, until that time, had been performed by the NGO representatives.

Box 9: Vision-Based Planning

Government officials and community members are often unenthusiastic about planning, either because previous plans were unrealistic and never implemented, or because they believe financial and human resources constraints are so limiting that their problems cannot be solved. Using a vision-based planning process can help increase enthusiasm for and effectiveness in planning. The WASH Project has used vision-based planning in several field activities.

In Belize, senior decision makers from two ministries worked to create a common vision of how they would improve the health of Belizeans. They then went on to develop a list of specific, coordinated actions in training and shared use of resources. Such cooperation had not been possible prior to their having agreed on the common vision.

In another task, Tunisian government officials and technical staff visited a number of Asian countries to see how water users' associations function. And in yet another task, Belizean technical staff visited El Salvador to learn how community-based malaria control projects could be implemented. Upon their return from these study tours, participants reflected on how what they learned was applicable to their countries, created a vision of the changes they would like to bring about, and outlined what they needed to do to achieve similar results.

For Further Guidance

Yacoob, May, et al. 1992. *Program Planning Workshop for Improved Productivity through Better Health Project*. WASH Field Report No. 365.

Community groups participating in the setting priorities step are encouraged to use a vision-based planning process. This process generally involves developing a common vision of a desired future, describing current conditions, and charting a path to move from current conditions toward the common goal. In this process, participants think about where they want to go without being hindered by the usual constraints and questions that tend to hamper creative thinking. After participants have been energized by developing a common vision, reality is brought back into the picture. Vision-based planning does not mean dreaming of the impossible; on the contrary, vision-based plans are realistic and action oriented with several important characteristics:

- They are based on community values and desires, rather than on technical projects or forecasts.

- They are communicated using public information materials in clear, easily understood prose and interesting visual formats.
- They identify specific implementation activities, timetables, and resources (Thomas, Means, and Grieve, 1988).

5.6 Techniques Used in Community Participation Activities

Basic knowledge, attitudes, and skills are delivered as the CIMEP approach moves towards implementation. The methods used in the model fall into the following areas:

- Experiential training, needs assessment, and verbal and non-verbal communication skills
- Asking open-ended and probing questions and facilitating and leading group discussions
- Problem-solving and action planning
- Conflict resolution

An incremental approach should be adapted for developing the specific skills that municipality and NGO trainers will need in order to work effectively and successfully with neighborhood associations. Some of the specific skills include:

- Making introductions
- Using open-ended, close-ended, checking, and other questions
- Using training aids such as flip charts and preparing visual aids
- Forming simple, doable tasks for group assignments
- Starting and leading a group discussion
- Planning an agenda in a participatory manner
- Interviewing focus groups
- Conducting home visits and observations
- Conducting an initial meeting with formal neighborhood leaders
- Conducting meetings with those responsible for management of environmental resources
- Conducting an introductory meeting with neighborhood groups
- Preparing and delivering short "workshop" training sessions
- Giving and receiving feedback

Training for community involvement places great emphasis on defining the skill, demonstrating the skill, learning the component parts of the skill, practicing and applying the skill, providing

supportive feedback to improve performance, applying and using the skill in a community setting via homework assignments, and carefully analyzing successes and failures for the purpose of improved performance.

Participation in CIMEP, as frequently noted above, works on two levels: the development and functioning of the municipality/NGO team on the one hand and their interaction with neighborhood institutions on the other. If a supportive and skilled team is created, the role modeling spills over into the work done with neighborhood institutions.

The concept of experiential training, which is at the heart of all training processes at WASH (and its follow-on, EHP), is also central here. In such training, participants learn to practice, give corrective feedback, and practice again in preparation for field tasks in neighborhoods. Deliberately examining and learning from experience become habitual. NGO and municipality staff are therefore thoroughly prepared for each task at the community level. The process also develops the NGO and municipality staff into a cohesive team.

5.7 Conclusion

Although the most immediate and direct concern of CIMEP is the implementation and management of environmental health improvements in a specific locale, the process is related to the much broader objective of addressing some of the root causes of poor environmental health. It has been argued that the culprit is not lack of resources, but lack of accountability by those responsible for the management of resources. Thus, the concept of community involvement in the CIMEP process confronts the central problem of accountability in governance; it is not limited to the goal of creating a sense of "ownership" among users. In CIMEP, participation empowers citizens—especially the poor—to exercise their ways of holding officials accountable.

Developing the Environmental Management Plan is only the beginning of a longer-term process of learning to communicate and advocate changes on the part of government and private-sector institutions and community representatives. This learning will lead directly to a more transparent municipal staff and, consequently, to better governance.

6

TOWARDS IMPLEMENTING THE CIMEP MODEL

6.1 Using the CIMEP Model

A number of development writers and practitioners, seeking to explain the existence of poor environmental conditions, particularly in peri-urban areas, point to poor governmental leadership, improper use of government resources, the lack of problem-solving skills among all actors and stakeholders, and the lack of voice of the poor (Douglass, 1992, and Cairncross, Harday, and Satterthwaite, 1990). These experts also note that environmental degradation in peri-urban areas does not result from a shortage of resources, such as land and fresh water. Rather, it results from poor governance. The urban environment will not improve unless low-income groups and their community representatives are able to obtain access to safe land sites, water supplies, and municipal services. To remedy this failure of governance within the municipal and city institutions of many developing countries, community involvement must be a planned, budgeted activity. For this reason, the technical process of assessing environmental conditions will continue to go hand in hand with the process of developing community-based capabilities. The following sections highlight the resources needed to use the CIMEP model.

6.1.1 Skills of Advisors

Technical advisors, as mentioned earlier, might come from a number of sources. A local NGO, a consulting firm, or even the technical staff of the donor agency might find themselves in the role of advisors. The source is not as important as the skills possessed by the advisors. Because developing community capabilities is a relatively new discipline, few people have the requisite process skills to manage implementation of the CIMEP model: expertise in facilitation and problem solving. The skills needed may be found among social scientists with experience in public health and environmental scientists with a broad-based background in either environmental engineering and planning or in risk assessment and policy. Both advisors should have training skills and experience in group facilitation. In addition, experts in epidemiology, risk assessment, finance, and environmental engineering will need to be involved in the field investigation and preparation of the environmental management plan.

6.1.2 Level of Effort

Section 3.3 described the three stages in developing a sustainable capacity in an NGO and a local government for implementing a CIMEP program. The first stage is approximately six months in which technical advisors guide local government and NGO staff through their first experience with the CIMEP model. This stage requires a total level of effort of approximately 20 person-weeks. Approximately six person-weeks are required from the two advisors who will manage the effort—one in social sciences and the other in environmental policy. Approximately two person-weeks each will be required from the epidemiologist, risk assessment expert, finance expert, and engineer.

Inputs from technical advisors might be distributed in the following manner, based on previous experience in implementing aspects of this process.

- Preparatory visit to the country to identify NGOs and potential EMC members: 10 work days.
- Assessment phase: 18-20 work days for study managers and 10 days for the epidemiologist, risk assessment expert, and finance expert.
- Planning phase: 12-15 days for the two managers and 10 days for the engineer.
- Facilitation of final workshop and finalization of management plans: two persons; 10-15 work days.

6.2 Conclusion

The CIMEP approach described here will have to be adjusted to fit the context in which it is being applied. Peri-urban communities are complex. Within them, various ethnic groups may be represented as well as many competing interests and conflicting values; networks and relationships are fragile. Planners will find that statistical information is as rare and as illusive as the opportunities for wealth that the peri-urban poor have come to seek. Government officials are trained in technologies that they do not have the resources or the manpower to build and maintain. Operational staff may enjoy the process of planning but have come to distrust it because the allocations they receive are rarely used on the plans they have prepared. No mechanisms exist to mediate the demands of public authorities and those of individuals or communities.

The CIMEP methodology integrates the peri-urban poor into the planning process. Recognizing that people have an intimate understanding of their own neighborhoods and communities, the methodology is less concerned with telling people what to do than with describing how to find out what to do and how to do it.

CIMEP is based on the assumption that people know what the problems are and frequently know how to tackle them. People also usually are aware of what works and what does not work. What is lacking, however, is a framework for drawing this information out of people who are used to being ignored and then defining appropriate solutions and building consensus and cooperation. Participation rarely happens unless it is planned and adequately financed.

The CIMEP model incorporates the WASH Project's experience in over a decade of implementing sustainable water, sanitation, and hygiene education programs. WASH has found that the best role for technical advisors is to mediate the planning process, including setting long-term goals that may require institutional and structural reforms. At the same time, spontaneous local demands must be encouraged and met. Both bottom-up problem solving and top-down coordination and management are needed and must be kept in balance.

Public participation in urban environmental management is a necessity, not a luxury. It ensures project efficiency and effectiveness, but it is also a moral obligation. Experience in the United States and other countries has shown that changes in environmental health begin with the people whose lives are affected by contaminated surroundings.

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